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# Part First.

## ORIGINAL COMMUNICATIONS.

## I.—THE DISORDERS OF SPEECH.

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### Part II.—The Development of Speech; and the Developmental Derangements.

### 1. *Sketch of the Development of Language in the Normal Child.*

Before entering upon the consideration of those derangements of speech which are due to arrested development, it is very desirable that we should have clear ideas as to the development of speech in the normal child. There are so many children in the world, and so many parents with full opportunities of observing them, that the various steps in the development of speech ought, one would think, to be very familiarly known. This, however, is far from being the case. Nature's processes in this development are so gradually completed as to exhibit no very striking steps that might serve as landmarks to the ordinary observer. Even a medical parent, however accustomed to accurate observation, would be able to give but a very poor account of the phenomena presented in the course of the development of speech in his own child, if he trusted entirely to memory.

A full understanding of the process of development of speech can be obtained only by systematic observation of the child's progress from day to day, and by noting down in writing, day by day, the observations made. This is a tedious process, requiring much self-denial and patience. It is a kind of work many are willing enough to begin, but few are capable of carrying to a successful conclusion. Among those who have been most successful in recording the progress of their own children in speech, are Charles Darwin,[1] from whose valuable observations a selection will presently be given; and W. Preyer,[2] Professor of Physiology in Jena, whose book upon the *Mind of the Child* ought probably to be regarded as the standard work on the subject. Other well-known writers on this subject are Berthold Sigismund,[1] Taine,[2] F. Pollock,[3] Perez,[4] and Dr G. J. Romanes.[5]

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[1] C. Darwin, *Expression of Emotions*; and *Biographical Sketch of a Child*, *Mind*, vol. ii., 1877.

[2] *The Mind of the Child*. International Educational Series, 1890.

The book of Professor Preyer, which is in two volumes, has been translated into English by Mr H. W. Brown, teacher in the State Normal School, Worcester, Mass., U.S.A. Besides treating of the development of the senses and the will in the child, and of the intellect generally, this work contains, in its second volume, a series of very detailed notes regarding the development of Speech in the Professor's own son, during the three first years of his life. In the Appendix, also, the author has brought together summaries of the conclusions of no fewer than thirteen or fourteen other observers (including some of those above mentioned) who have watched the development of speech in their children in a similar fashion. Professor Preyer has thus done invaluable service, both in recording his own observations and in bringing together a very considerable mass of observations made by others; and the reader will find, on perusal of his work, that these observations are classified and considered in a very interesting and instructive manner. For a brief sketch, however, we must adopt a plan different from that of Professor Preyer, and arrange the facts in a different manner. Preyer's method is essentially a chronological one; the progress of his boy in all particulars being noted down day by day. In a short paper like this, it will enable us to deal with the matter more clearly and succinctly, if, instead of a chronological, we adopt an analytic method, and treat of each factor fully before proceeding to take up the next factor. This arrangement will, in the case of each factor under consideration, help us to bring together without confusion, as occasion may require, the observations that have been made on it, by the various writers that have paid special attention to it.

The plan of this paper will be quite clear to the reader if he will, before reading it, examine with care the accompanying Diagram. It is hoped that the Diagram will be found to be so easily understood as not to require description. The only point that requires to be specially stated is that the various factors of the Diagram will, in the paper, be taken up from left to right, in the order of the Diagram, Crying being first considered, and the Production of Intelligent Speech last.

Independently of speech properly so-called, there are other means by which the child can give expression to its emotions and states of feeling. Such are Crying and Laughing, Crowing, and the Language of Facial Expression and Gesticulation. The development of these methods of expression is intimately related to the development of speech proper. There is a language in the very tones of the child's voice, and in the expression of its face—a language inherited rather than acquired—which is understood by mothers and nurses from a very early period of the child's life. The same language of vocal tone, facial expression, and gesticulation, used by the parents, is understood from a wonderfully early period by the child. It forms, indeed, the first means of communication between the minds of parent and child; and, later, it plays an extremely important part in the education of the child to the understanding of speech properly so called.

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[1] *Kind und Welt*, 1856; see Preyer's Appendix. The book itself seems to be now out of print.

[2] *Acquisition of Language by Children;* contributed originally to the *Révue Philosophique;* translated into English for *Mind*, vol. ii., 1877.

[3] *An Infant's Progress in Language, Mind*, vol. iii., 1878.

[4] *The First Three Years of Childhood*, 1889.

[5] *Mental Evolution of Man*, 1888.

I propose in the following brief sketch to say, in the first place, a few words about each of these inarticulate methods that Nature has provided for communicating information to others regarding states of thought and feeling.

### *Expressive Inarticulate Sounds.*

A. CRYING.—Naturally, the first Expressive Inarticulate Sound that claims our attention is Crying. It is by crying that the child announces its arrival in the world; and for months afterwards it occupies itself much in crying while awake, partly perhaps for exercise, and frequently as an indication of hunger or wetness, or some other form of discomfort. Both Preyer and Darwin make some valuable observations about crying. Preyer says that, in crying, certain vowel-sounds can be more or less clearly distinguished, viz., those of **uä, uä**, which may be represented in English by the sounds of **oo eh, oo eh**. These are repeated, with untiring uniformity, for many months; only a few other sounds being added to them, viz., the syllables **ma, nei nei**, which in his child made their appearance in crying on the 64th and 65th days. He observes that even within the first five weeks, notwithstanding the uniformity of the vowel-sounds, the tones of the voice are so varied, that it may be told with certainty from these alone whether the child feels hunger or pain. There is screaming, with eyes firmly closed, in hunger; whimpering in slight indisposition, etc. During the 18th month, he notes still greater precision in the expression of the various moods by these inarticulate tones; and states that by screaming, wailing, whimpering, and weeping, moods of grief, desire, hunger, wilfulness, and fear, are made easily recognisable.

Darwin, in his work on the *Expression of the Emotions*, says (p. 160) that infants, when young, do not shed Tears when crying, although tears may be caused to flow by reflex irritation of the conjunctivæ. On one occasion he accidentally brushed the open eye of his child with the cuff of his coat, and noticed that, although the irritated eye watered and the child screamed violently, the other eye remained dry. In this child, his first observation of the free effusion of tears during screaming was when the child was at the age of 139 days: they rolled down the cheeks. He states that in other children he has found the period at which the eyes become slightly suffused with tears during crying to be very variable, being in one child as early as the age of twenty days and in another at sixty-two days. In one instance he was positively assured that tears ran down at the unusually early age of forty-two days.

Preyer thinks Darwin mistaken in placing the date for the shedding of tears so late as he does. He believes that in German children pain causes the shedding of tears almost from the first, and states that in them it is not weeping, but sobbing, that first comes so late.

Darwin directs attention to the closure of the eyes during screaming, and to the square shape of the open mouth. He quotes with approval the description by Mrs Gaskell of a baby crying. She says, "It made its mouth like a square, and let the porridge run out at all four corners." Darwin also directs attention to the contraction of the corrugators and the firm closure of the eyelids that are associated with screaming.

B. LAUGHING.—Darwin makes some interesting remarks regarding the Physiology of laughter. At p. 220, *op. cit.*, he says that whether laughter should be regarded as the full development of a smile, or a smile as the last trace of a laugh, we can follow, in infants, the gradual passing of the one into the other. Recognising how difficult it is to be sure when the motions about an infant's mouth ought to be interpreted as a smile, he carefully watched the phenomena in his own infants. He found in one of them a pretty distinct smile at the age of forty-five days; and eight days later, the smile was unmistakable—the eyes becoming bright and the nose transversely wrinkled. There was at the same time a little bleating noise which perhaps represented a laugh. At the age of 113 days this noise became more broken and interrupted, as in sobbing; and he then regarded it as certainly incipient laughter. In two other children, smiling appeared at about the same date as in the first child.

Preyer's boy seems to have smiled rather sooner than Darwin's children. Quoting Pliny's remark that no child laughs before the fortieth day, Preyer says, "I observed an audible and visible laugh, accompanied by a gleam of the eye, in my child for the first time on the twenty-third day. He was pleased with a bright rose-coloured curtain that was hanging above him; and he made peculiar sounds of satisfaction, which first led me to pay attention to him." The child afterwards laughed as a sign of joy, on looking at his mother's face, from the sixth to the ninth week; and by the sixth month his laugh had become merry, being accompanied by rapid raisings and droppings of the arms as a sign of the utmost pleasure. It first became persistently loud, in play with his mother, in the eighth month; so that every one could then at once recognise it as a laugh without looking in that direction. At such times, "the child made a peculiar impression of gaiety upon every one who saw him." The father notes that towards the close of the first year the laugh became different, being more conscious, and indicative of more understanding than before.

Preyer notes that the child could by tickling be made to laugh even as early as the second month. Later, this reflex laughter was found to bear a close resemblance to that produced by the imitation of laughter in others. It did not seem to be fully possessed of the merry ring of the spontaneous expressive laughter.

Darwin says that in the gradual acquirement by infants of the power of laughing we have a case in some degree analogous to that of weeping: practice is necessary before the child can either laugh or weep; just as it is necessary before he can walk. The art of screaming, on the other hand, from being of service to very young infants, is finely developed from the earliest days. He holds that children probably laugh and cry by inherited instinct, and that they understand by instinct these actions in others. He says (p. 379) that one of his own children at the age of four months understood a smile, and responded to it by another; and that the same child, when a few days over six months' old, was brought by sympathy to the point of weeping, when his nurse pretended to cry. Darwin remarks upon the retention of weeping throughout life by savages as a means of expressing emotion; and quotes from Sir John Lubbock the case of a New Zealand chief "who cried like a child because the sailors spoiled his favourite cloak by powdering it with flour." He thinks that laughter is primarily the expression of mere joy and happiness; as we clearly see in children at play, who are almost incessantly laughing. He once heard a child a little under four years old, when asked what was meant by being in good spirits, answer, "It is laughing, talking, and kissing."

C. GRUNTING.—This is an inarticulate sound of a more or less expressive character, which may be placed alongside of crying and laughing. Preyer noted it within the first three months, as an announcement of completed digestion, or of wetness; and says that for the first of these states it was retained by the child into the seventeenth month. It was generally associated with "abdominal pressure," and with lively movements of the arms.

### *Language of Facial Expression and Gesture.*

A. FACIAL EXPRESSION.

(*a*.) *Frowning*.—Darwin, carefully observing his own infants from under the age of one week to that of two or three months, found that "when a screaming fit came on gradually, the first sign was the contraction of the corrugators, which produced a slight frown, quickly followed by the contraction of the other muscles round the eyes." He states that, when an infant is uncomfortable or unwell, little frowns may be seen to pass like shadows over the face, and that these are sometimes followed by a crying fit. He notes a steady little frown on the face of an infant seven or eight weeks old who was sucking some milk which was cold and therefore displeasing to him.

(*b.*) *Rage.*—Darwin says that in one of his own infants under four months old he repeatedly observed that the first symptom of an approaching passion was the rushing of blood into the bare scalp. He says that "every one who has had much to do with young children must have seen how naturally they take to biting when in a passion. It seems as instinctive to them as in young crocodiles, who snap their little jaws as soon as they emerge from the egg." Preyer, referring to children about the age of seventeen months, observes that when no response is made to a persistently expressed desire they may be seized with a regular fit of rage, throw themselves on the floor, strike out when taken hold of, and scream furiously and most angrily; but he notes that it may also happen that disappointments of this sort produce tears of sorrow instead of fits of rage. Frowning, flushing, and screaming are noted as among the common indications of anger in children.

(*c.*) *Disgust.*—Darwin (p. 273) says that he never saw disgust more plainly expressed than on the face of one of his infants at the age of five months, when, on one occasion, some cold water, and on a subsequent occasion, a piece of ripe cherry, was put into his mouth. This was shown by the lips and whole mouth assuming a shape which allowed the contents to run or fall quickly out; the tongue being at the same time protruded. He remarks that the protrusion of the tongue in letting a nasty object fall out of the mouth may explain how it is that lolling out of the tongue universally serves as a sign of contempt and hatred.

(*d.*) *Sulkiness.*—Darwin (p. 242) shows that sulkiness in young children is shown by pouting, or, as it is sometimes called, "making a snout." "When the corners of the mouth are much depressed, the lower lip is a little everted and protruded, and this is likewise called a pout. But the pouting here referred to consists in the protrusion of both lips into a tubular form, sometimes to such an extent as to project as far as the end of the nose, if this be short. Pouting is generally accompanied by frowning, and sometimes by the utterance of a booing or whooing noise. This expression is remarkable as almost the sole one, as far as I know, which is exhibited more plainly during childhood, at least with Europeans, than during maturity. There is, however, some tendency to the protrusion of the lips with the adults of all races under the influence of great rage. Some children pout when they are shy, and they can hardly then be called sulky."

(*e.*) *Guilty Expression.*—Darwin (p. 275) notes that he observed a guilty expression without a shade of fear in some of his own children at a very early age. "In one instance the expression was unmistakably clear in a child two years and seven months old, and led to the detection of his little crime—the taking of pounded sugar which he had been told not to take. It was shown, as I record in my notes made at the time, by an unnatural brightness of the eyes and by an odd affected manner impossible to describe. As he had never been in any way punished, his odd manner was certainly not due to fear, and I suppose it was pleasurable excitement struggling with conscience."

(*f.*) *Surprise.*—Both Darwin and Preyer remark on the elevated eyebrows and open mouth as indications of surprise; and Darwin tells an anecdote which shows that children at a distance can interpret the lifting up of the hands, with fingers extended and spread apart, as an indication of astonishment.

(*g.*) *Fear.*—Preyer (vol. ii., p. 132) notes screaming as a sign of fear, which in his child was most markedly produced by anticipation of the cold bath; and he observes (p. 131) that fear is one of the moods of mind which the child makes easily recognisable by the character of its screaming. Darwin, as is well known, has very fully described the indications of fear in man and in the lower animals; but he says nothing regarding it that applies in any special way to children.

(*h.*) *Blushing.*—About the phenomenon of blushing, Darwin has a great deal that is interesting to say. He distinguishes it from the flushing of rage, which is common to man and some of the lower animals; and holds that blushing is the most strictly human of all expressions; that it cannot be produced by any physical means; and that the psychical condition which seems necessary for its production is self-consciousness and sensitiveness to the opinions of other people regarding personal appearance, conduct, etc. He shows that idiots do not blush, and that blushing never occurs in very early infancy. Excessive blushing is frequently an inherited peculiarity. When the tendency is strongly developed, it may appear at the age of two or three years. He has notes of two little girls blushing at the age of between two and three years, and of another sensitive child, a year older, blushing when reproved for a fault; and he states that many children, at a somewhat more advanced age, blush in a strongly marked manner. Young people always blush more freely than the old. He has a good deal to say about Shyness as a cause of blushing. He says, "with young children it is difficult to distinguish between fear and shyness, but this latter feeling with them has often seemed to me to partake of the character of the wildness of an untamed animal." In one of his own children he noticed a trace of shyness at the age of two years and three months. It was shown, not by a blush, but by the eyes being for a few minutes slightly turned aside. He thinks that shyness, and shamefacedness, and real shame, are sometimes exhibited in the eyes of young children before they have acquired the power of blushing. He holds that, as shyness apparently depends on self-attention, " we can perceive how right are those who maintain that reprehending children for shyness, instead of doing them good, does much harm, as it calls their attention still more closely to themselves." Remarking on the absence of self-consciousness in children at a very early age, he says that " it is one of their chief charms that they think nothing about what others think of them. At this early age they will stare at a stranger with a fixed gaze and unblinking eyes, as on an inanimate object, in a manner which we elders cannot imitate."

### B. GESTURES.

(*a.*) *Negation and Affirmation.*—One of the gestures which is soonest acquired by children is the moving of the head from side to side as an indication of negation. Darwin thinks that this movement, as well as the companion movement of nodding for affirmation, may have originated in connexion with the feeding of children. When the child is willing to take its food, it bends the head forward, but, if unwilling, it turns the head to one side. In the latter case, if the food be pressed upon it, it may turn its head alternately to the one side and to the other. Later, the child is easily trained to employ these movements as indications of affirmation or negation. Preyer states that his child first shook the head from side to side when any one said "No, no," to him in the thirteenth month, but that he did not learn the affirmative nod till the fifteenth month.

(*b.*) *Pointing with the Hand or Finger.*—This is a very important gesture, much used by young children. Preyer states that it is already employed with perfect correctness before the first attempts at expression in words. He refers to a little girl of eleven months, who, not yet able to speak at all, answered such questions as "Where is Papa?" "Where is Nanny?" correctly, without a single mistake, by movements of the eyes, and by indicating direction with the finger. He states that later this pointing is used as an expression of a wish. One of Darwin's children, for example, at the thirteenth month, picked up a piece of paper and gave it to his father, pointing to the fire, because he wished to have the pleasure of seeing it burn.

Many other gestures might be described, such as the stretching out of the hands and grasping with the fingers when something is wanted; such movements being developed from a very early period. Shrugging of the shoulders, as indicative of helplessness, is frequently developed, by inheritance or imitation, in the children of French and German parents; but is rare in English children.

Sometimes the child's Actions are full of expression,—for example, those of Preyer's child of twenty-two months when he wished to sit at the table. "No one listening to his entreaty, he goes into the corner of the room, tries with a great effort to get a heavy chair, does not rest till he has placed it at the table, strikes with the flat of his hand on the seat of the chair, thus expressing plainly without words what he wants, and exults when he has been put up on the chair."

Preyer thus concludes his consideration of this subject:—"The variety in the expression of the countenance, when, in the second and third years, the separate passions gradually awake, is indescribable; and, on account of the transitoriness of the phenomena, is hardly to be reproduced pictorially. Jealousy, pride, pugnacity, covetousness, lend to the childish countenance a no less characteristic look than do generosity, obedience, ambition. These states could not be recognised by the expression of countenance unless each of them had its own expressional movements; and, in fact, these movements appear in greater purity in the child, who does not dissemble, than they do in later life."

As to the power of the passion of jealousy in children, Perez[1] has some interesting remarks. He says, for example, "One of my nephews at the age of three years used continually to talk of the little brother he was soon to have. 'I shall love him so much,' he would say every instant. But when he saw the baby taken up on his mother's lap, and kisses and caresses, and his father's care and attention, he expressed his annoyance loudly. He even said to his mother, 'Won't little Ferdinand soon die?' When the baby began to walk and talk, the elder child would torment him in hundreds of naughty ways; beating him, dragging him out of his chair in order to take his place, shouting in his ears, calling him naughty and ugly, taking away his toys, and mimicking his way of talking and walking."

### *Automatic Exercises of the Speech Organs.*

A. BABBLING.—This is a most interesting phenomenon, exhibited by all healthy children from a very early age. It is the Automatic and Unconscious Exercise of the organs, which at a future time will become the agents of Speech. Just as the child, before he can walk, must exercise his limbs in kicking and sprawling, so, before he can even begin to speak, he must exercise his organs of Speech in a similar inco-ordinate fashion. In crying and laughing, as already shown, the organs of Phonation are abundantly exercised. In Crying, the Oral Mechanism has been observed to take a slight part, sufficient for the imperfect production of a few vowel sounds, and one or two consonants. But, in Babbling or Prattling, we have something altogether different: something more nearly akin to the movements of articulate speech, inasmuch as the Oral Mechanism takes part in it almost as actively as the Vocal. In babbling or prattling, vowels are produced in much greater variety, and with much greater distinctness than in crying, and consonants are for the first time produced abundantly, their variety being, indeed, astonishing.

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[1] *Op. cit.*, p. 71, *et seq.*

From the very detailed notes of Professor Preyer, we may make a few illustrative extracts showing the progress of his child in the production of vowel and consonant sounds during this process of babbling.

On the forty-third day, Preyer heard the first consonant. "The child in a most comfortable posture, uttering all sorts of obscure sounds, said once distinctly, **am-ma**. Of vowels, **a o** was likewise heard on that day. But on the following day the child surprised me and others by the syllables, spoken with perfect distinctness, **ta-hu, ta-hu**.

"On the forty-sixth day, in the otherwise unintelligible babble of the infant, I heard, once each, **gö** (ö nearly like **i** in bird), **örö**; and five days later, **ara**.

"In the eighth and ninth weeks, the two utterances **örrö** and **arra** became frequent; the **ö** and **a** being pure, and the **r** uvular. It has already been noted that **ma** and **nei-nei** were produced, in crying, on the sixty-fourth and sixty-fifth days. On the sixty-fifth day, **a-omb** was produced, in babbling.

"On the day after, distinctly, once each, **la, grei, aho**; and, besides, **ma**, again.

"On the sixty-ninth day, the child when hungry uttered repeatedly, and very distinctly, **mömm** and **ngö**.

"In the tenth week, of the syllables earlier spoken, only **örrö** is distinctly repeated. On the seventy-first day, the child being in the most comfortable condition, there comes the new combination **ra-a-ao**; and five days later, in a hungry and uncomfortable mood, **nä** and **nāi-n**.

"On the seventy-eighth day, the manifest sign of contentment **habu** was very distinct; and likewise in the twelfth week, **a-i** and **uāo**, as well as **ä-o-a**, alternating with **ä-a-a** and **o-ä-ö**.

"It now became more and more difficult to represent by letters the sounds already more varied, and even to distinguish the vowels and repeat them accurately."

The above may be taken as an example of Preyer's detailed observations. But it will not be necessary for us to follow his description further in full detail. It may suffice to say that, within the first seven months, all the vowel and consonant sounds, with a few exceptions, had been recognised in the babble of the infant. The exceptions were **w**, which appeared in the twelfth month; **s**, in the fourteenth; **z**, in the fifteenth; **f**, in the sixteenth; and **sh**, which did not appear until the twenty-fourth month, when the child had already acquired some amount of actual speech power.

One of the chief occupations of a healthy child is this babbling or prattling, and he is most apt to practise it when he is feeling happy and comfortable.

B. Crowing.—When he is specially happy he frequently practises Crowing, which appears to be little else than a loud and joyous production of sounds of the same nature as those of babbling. Preyer notes that, on the seventy-eighth day, the manifest signs of contentment were **habu**, **ai**, **uāo**, etc. About the fifth month, began the amusing crowing of the child, an unmistakable expression of pleasure; the child pronouncing the strong aspirate sound **ha** with the labial **r** in **brrr-há**, as well as other sounds, such as **aja** (**j** like **y** in English). About the thirteenth month, the joyous crowing sound had become stronger and higher; the child crying out, on seeing his mother in the distance, a sound which might be represented by the letters **ăhijă**.

The habit of babbling and crowing is retained by the child even after he has begun to acquire the power of Speech. Preyer's child in the thirty-fifth month is reported to have been found repeating all sorts of meaningless syllables again and again, much as in the period of infancy, only more distinctly; "but, just as at that time, they cannot all be represented on paper, or even be correctly reproduced by adults."

C. Mimic Reading.—A further development of babbling is the child's Mimic Reading of books and newspapers. This was first noticed by Preyer during the fifteenth and sixteenth months. He says, "The child likes to take a newspaper or a book in his hands and hold the print before his face, babbling **ä-ĕ**, **ä-ĕ**, **ä-ĕ**, evidently in imitation of the reading aloud which he has often observed. By giving the command, 'Read,' it was easy to get this performance repeated." It was again observed in the nineteenth month, when the child, spreading a newspaper on the floor, "read" over it for a long time in a monotonous voice, **e-já-e-e-ja nanana ána-ná-na atta-ána āje-já sā**. It was kept up in the same manner in the twentieth month. In the twenty-first month, the reading became still more frequent; but, singularly enough, the sounds, from the eighty-ninth week on, became different, the consonants becoming more prominent than they had hitherto been. In the twenty-seventh month, it is noted that babbling monologues are becoming less frequent.

D. Echolalia.—This curious phenomenon seems, in the progress of development, gradually to take the place, to a considerable extent, of the babbling monologues above described. The child may begin to practise it even before he has acquired the power of pronouncing any actual words, spontaneously or at command; the pronunciation of words by Echolalia seems at first to cost him much less effort than the pronunciation of words at command; and the words produced by Echolalia are, in the first instance at least, produced in a parrot fashion, without the slightest inkling of their meaning, and without any apparent effort on the part of the child to understand them. They are mere sound-imitations, and for the most part are repetitions of the last words in sentences that the child has just heard spoken in his vicinity. The child repeats the last word again and again mechanically. No doubt this mechanical repetition plays an important part, as a preliminary exercise, in the development of actual speech. The words will by-and-by be produced intelligently with all the greater ease, if their pronunciation has already been practised mechanically. Preyer, in the fourteenth month, first noted this parrot-like repetition; the first examples of it being given in the repetition of syllables that the child had in the first instance uttered of his own accord, and that his father, Preyer himself, had immediately afterwards pronounced to him. "Thus **attäi, täi, atta**, were often easily and correctly repeated in this way; but, strangely enough, frequently in a whisper." In the twenty-third month, it is noted that if the child hears some one speak he often repeats the last syllable of the sentence just finished, if the accent be on it; as in 'What said the *man?*' where he says **man**; or in 'Who is *there?*' where he says **there**. Once the name Willy was called; and immediately the child called **ŭilē**, with the accent on the last syllable; and repeated the word many times. In the twenty-fourth month, Echolalia is still further developed: the child after hearing shouted the German word 'Herein!' ('Come in!'), repeated it as **arein, arrein, ha-arein**; at first as a sound, but afterwards with more intelligence, looking at the door. In the twenty-seventh month, articulation being further developed, the child is able to repeat by Echolalia little sentences which he has just heard pronounced; and some of these, at subsequent times, he would occasionally reproduce from memory without understanding them, to the great amusement of the family; for example, **Um Gottes willen** (for God's sake), and **Da hastn** (there you have him). He also imitated all sorts of noises, such as the whistle of the locomotive and the voices of animals.

### *Intelligent Speech.*

A. The Understanding of Spoken Words.—How early the awakening intelligence of the child begins to interpret the language of gesture, tone of voice, and facial expression, has already been illustrated by the case of one of Darwin's infants, who at four months smiled in response to a smile and at six months was brought to the point of crying when the nurse pretended to cry. The Understanding of Spoken Words dawns upon the child considerably later. In learning to understand words and to speak, girls are, as a rule, earlier than boys. The case of one little girl has already been cited, who at eleven months correctly answered the questions, "Where is Papa?" "Where is Nanny?" etc., by pointing with the fingers, though not yet able to speak a word.

In a process of development, it seems natural that words should be understood before they can be intelligently produced; and it is the fact that, throughout the process of learning to speak, the understanding of what is spoken keeps far ahead of the power of independently producing spoken words.

In most children, the understanding of certain words in very familiar use, such as **papa** and **mama**, seems to dawn upon the child towards the end of the first year, or about the beginning of the second. Preyer notes that, in the twelfth month there was for the first time developed in his boy an *ability to discriminate* words heard. "The child turns round when his name is spoken in a loud voice: he does this, it is true, at other loud sounds also, but then with a different expression. In the thirteenth month, the word **mama**, which formerly had often been used by the child in his babbling, is now for the first time referred to his mother." Preyer remarks that in this month, the first of the second year, the most important advance consisted in the now awakened understanding of spoken words. "The ability to learn, or the capability of being trained, has emerged almost as if it had come in a night. The child is now easily taught to hold up his arms, when the question is asked, 'How tall is this child?' and to hand prettily an ivory ring to his father, when asked, 'Where is the ring?' If, when he is holding a biscuit to his mouth, he is asked to give, he holds the biscuit to the lips of the person who asks him."

In the fourteenth month, the understanding of words heard is found to have still further advanced. He knows where the clothes-press is; and turns his head in the right direction when asked, "Where is papa—mama—the light?" When asked to play the piano, he beats his hands on the table. If anyone speaks to him of the nose, he snorts. When 'No, no,' is said to him, he shakes his head from side to side. Yet, with all this rapidly advancing understanding of spoken words, there is, at this time, no power of producing speech properly so called. The child cannot even repeat 'Pa' or 'Ma' or 'o' or 'e,' and the only word which he employs with a definite meaning is one of his own invention, viz., **atta**, which with him signifies **away** or **gone**.

In the fifteenth month, when coughing is spoken of he coughs; when blowing, he blows; when kicking, he stretches out his legs; and when the moon, the clock, the eye, or the nose is mentioned, he raises an arm, spreads the fingers, and looks in the proper direction. He also gives his hand when asked to do so.

In the sixteenth month, he can point out the features of his own face, and knows where 'the other eye' and 'the other ear' are.

In the eighteenth month, a number of additional words are understood; such as finger, glass, door, sofa, thermometer, stove, watering-pot, and biscuit. Still, as yet, the repeating of syllables spoken for him is rare; even the word **Mama** being responded to by '**ta.**'

In the nineteenth month, **Pa** is at last correctly pronounced in imitation; and in the twentieth he can say **Papa.**

From this time forward, the vocabulary of words that are understood rapidly increases; and it continues to keep ahead of the vocabulary of words which can be pronounced by the child. But it will not be necessary for us further to follow the progress of the child from month to month.

B. WORDS OF CHILD'S OWN INVENTION.—A few remarks may now be made about the specific word-sounds of their Own Invention which some children from a comparatively early period employ, in making known their wants, or in giving expression to their emotions. Both Darwin and Preyer have noted some of these. Darwin says that one of his children, in the twelfth month, when he wanted food, began to say **mum**, instead of beginning to cry as formerly. At a later time, **shu-mum** was used for sugar, and still later, **black shu-mum** for black sugar, these words being pronounced with a very marked tone of longing. Preyer says that his boy frequently in crying said **momm** when hungry; that this was noticed even so early as the tenth week; and that a child observed by Frau Schultze of Dresden used to say **mäm-äm** in the same circumstances. **Mimi** was a word used by Preyer's boy as a general designation for food. It was supposed to be derived by the child from the word **Milch**, which he was in way of hearing frequently. It appeared first in the twenty-first month, and was often uttered with indescribable longing. **Hay-ŭh** was a begging sound associated with stretching out of the arms and forward inclination of the body, which began to be used during the first three months of the second year. **Atta**, as already indicated, was a word employed, for a considerable period, with the meaning of away, when anything disappeared or a light went out. It first began to be used in the fourteenth month.

Preyer thinks it a mistake to designate these words as "words of the child's own invention." He regards them as probably obscure imitations of words that the child has been in the habit of hearing: **Mimi**, for example, being probably derived from **Milch.** Cases, however, are recorded by others, in which a copious vocabulary of such words, each word with its definite signification, was employed by the child for a lengthened period before any serious attempt was made to employ words of the mother-tongue. Romanes[1] records two remarkable cases of this description.

In the first case, two twin boys, remarkably alike in personal appearance, invented, at the age when speech is usually first developed, a language of their own; and for several years no pains could induce them to speak anything else. Even the usual first words 'papa, mama,' they refused to use. They had their own names for their parents and for their aunt; and, talking in their own speech, they played together with all the liveliness and volubility of common children. Their word for carriage was 'ni-si-boo-a;' and when a carriage was heard in the street, they would shout this word, and run to the window to see it.

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[1] *Op. cit.*, p. 138, *et. seq.*

The second case was that of a girl, aged four-and-a-half years, sprightly, intelligent, and in good health. At two years, she had been backward in speaking, and used only the words **Papa** and **Mama**. After this, she began to use words of her own invention, and, though she readily understood what was said, never used the words used by others. Gradually she accumulated a considerable vocabulary of her own words. She had a brother, eighteen months younger than herself, who learned her language. When the two were together, they could converse with great rapidity and fluency. It is curious that in this case, although the parents were American and spoke English, and no French-speaking people lived in the house, some of the words employed were in sound closely allied to French. Thus **feu** meant 'fire, light, cigar, sun;' **too** (Fr. 'tout') meant 'all, everything;' and **nepa** (Fr. 'ne—pas') meant 'not.' **Petee-petee** (an apparent equivalent of the French 'petit') was the name given by the girl to her little brother; and **ma** (Fr. 'moi') meant 'me' or 'I.' The word **mea** signified both cat and furs; but this is almost the only trace, in the language, of words suggested by the imitation of sounds. A considerable list of other words is given from the vocabulary of this curious case. **Migno-migno** signified 'water, wash, bath;' **go-go**, delicacies; **gar**, 'horse'; **deer**, money of any kind; **beer**, literature, books, etc.; **peer**, 'ball'; and so on. It will not be necessary to give the case in full detail: the specimens of words already given will suffice to show that the designation "words of the child's own invention" is probably the best that could be used for the words thus occasionally formed and used by children. In most cases, there is nothing in them to suggest, even remotely, imitation of the mother tongue.[1]

*C.* INTELLIGENT SPEECH PRODUCTION.—In following the progress of Preyer's boy as he began to accumulate a vocabulary of words which he understood but could not pronounce, we found that about the nineteenth month the vocabulary was already considerable. It presented a remarkable contrast to the small number of words with definite meaning that he was as yet able to use for the purposes of speech. These consisted merely of his old self-invented word **atta** and the words **pa** and **papa**. During the progress of that month, however, he made many efforts to imitate other words that were pronounced to him: thus, for 'bitte' (please) he said **bis, bits**; etc. For 'Fleisch' (meat) he said **daisch**. In the twentieth month, he correctly reproduces several words of two syllables, such as **Papa, Mama, bebe, baba**, and **neinei**; but 'trocken' yields **tokke**, and 'warm' and 'weich' become **wāi**. For 'adieu' he gives **adē**; and he declines to try 'Gute Nacht,' though he holds out his hand when one says it to him. In the twenty-first month, the father notes that words of unlike syllables are not repeated at all: not even 'bitte' (please). In place of 'danke' he gives **dank-kee**—at an earlier time it had been **dakku**. When asked, "Do you want milk?" he replied **Neinein**; and, on another occasion, when asked, "Does it taste good?" he answered **Jaja**. In the twenty-second month, he is remarked to obey orders with surprising accuracy. In the twenty-third month, the first spoken judgment is noted: he said **heiss** (hot), when he found milk too hot in drinking it; and in the same week, looking at the stove, he suddenly said with decision **heiss** (30 weeks previously he had reproduced **heiss** by Echolalia without understanding it). 'Wasser' is now pronounced as **Watja**; and **Mimi** means milk and food in general. His grandparents he designates as **E-papa** and **E-mama**. A great many words can now be imitated more or less correctly; 'Ohr' being given as **Oa**, 'Haus' as **Hausesess**, 'Hand' as **Hann**, 'Finger' as **Finge**, 'Karl' as **Kara**, 'Butter' as **Buotŏ**. (Echolalia is about this time noted as being very active.) Spontaneously the child says **Ab** (off), when he wants a neck-ribbon loosened. For "Guten Morgen" he says **Moigen**, and for "Gute Nacht" he says **Na**. In the twenty-fifth month, progress is noted as extraordinary. It is observed that the vowels give the boy no difficulty, with the exception of **u (oo)** and **i (ee)**, which he does not yet produce perfectly. Among the consonants, **sch** (sh) is still omitted; as also are many double consonant-sounds, such as **cht**. He now gives in his own fashion the names of many things when they are pointed to, saying, for example, **Nana** for 'Nase' (nose); **Ba** for 'Backe' (cheek); **Tenn** for 'Kinn' (chin); **Ann** for 'Hand.' In the twenty-sixth month, **sch** (sh) now appears for the first time, in the word **Handschuh** (glove), but not in other words. He now for the first time begins to use verbs, but always in the infinitive, as, **Mama auch tommen** (Mama come too); and he makes new infinitives out of nouns, saying, for example, **messen** from 'Messer' (knife), when he wishes to have an apple pared. He now in his own way expresses his feelings by words; exhibiting, for example, much sympathy when dolls are being cut out of paper, being afraid that the head (**Topf**) may be taken off; and crying "**arme Holz**" (poor wood), when a stick of wood is thrown into the stove. In the twenty-eighth month, besides other indications of great progress, he asks his first question, viz., "Where is Mima?" It is noted that, in his articulation, he still misses **s** and **sch** frequently. In the twenty-ninth month, he uses the first personal pronoun for the first time, saying "Bitte gib mir Brod" (please give me bread). He had formerly designated himself by his Christian name, Axel. In the thirty-second month, he uses this pronoun in the nominative case, saying, "**Ich komme gleich**" (I am coming immediately). In the thirty-third month, he has progressed so far as to use sentences of some length; thus, pointing to the picture of a cock, he says, "**Das ist der Hahn,—kommt immer—das ganze Stück fortnehmt—von der Hand—und laüft fort**" (That is the cock—keeps coming—takes away the whole piece—out of the hand—and runs off). This refers to his previous feeding of fowls, at which a cock had actually behaved as described. During this month, he for the first time uses the second personal pronoun, remarking, "What a pretty coat you have." It is about this time remarked that a feeling of self-hood is becoming strongly developed, so that the boy wishes to do everything for himself, without help. When asked where he learned such and such an expression, he replies that he learned it "himself alone." In the thirty-fifth month, a feeling of causality begins to be expressed in language. Questions are now asked till it reaches the point of weariness: "Why is the wood cut?" "Why does Frederick clean the flower-pots?" and so on, *ad infinitum*. The father says that it seems remarkable that he did not once hear the child say "When?" until the close of the third year. "The sense of space is but little developed at this time, but the sense of time still less." It is remarked that the articulation is being speedily perfected, so that of German sounds the **sch** alone is seldom correct, being represented by **s**. It did not finally replace the **s** until the forty-six month.

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[1] The first of these two cases was originally published by Mr Horatio Hale, in the *Proceedings of the American Association for the Advancement of Science*, vol. xxxv., 1886.

The second case was originally published by Dr E. R. Hun, in the *Monthly Journal of Psychological Medicine*, 1868.

In the thirty-sixth month, grammatical errors are becoming much more rare, and long sentences are formed correctly, though slowly and with pauses. The father remarks that the child's manner of speaking, now that he was three years old, approximated more and more rapidly to that of the family, through continued listening to them and imitation of them. He therefore, at the conclusion of the thirty-sixth month, gave up taking notes.

The above are but examples of the very detailed observations recorded by Professor Preyer regarding the progress of his boy. Many details have been omitted; but the work itself is easily accessible, and is worthy of careful perusal. It appears to me that one of the most striking facts brought out by this valuable record is the marked difficulty which a child experiences in his first attempts to pronounce syllables or words by a definite effort of the will, either spontaneously exercised or made at request. This difficulty becomes all the more striking when one considers the apparent ease with which, for months previously, consonants and vowels have been produced in automatic babbling, and words, and even phrases have been reproduced by the process of Echolalia.

The first efforts at intelligent speech call into action the higher and more conscious functions of the Cerebrum, which, as yet, have had little or no concern with the processes of articulation. Everything goes to show that the higher centres can learn their own duties with regard to speech, and train the lower speech-centres to prompt and perfect obedience, only after a period of persevering effort. All such effort involves the exercise of intelligence and attention. In our next chapter, we shall find that the chief Developmental Derangements of speech are to be met with in children who are feeble minded, and therefore defective in intelligence and the power of attention. These children are incapable of making the sustained effort required for the training of the nervous mechanism.

Even in Preyer's boy, great difficulty, sometimes betrayed by efforts of straining, was observed in the production of syllables at command for the first time. But another case, reported by M. W. Humphreys, Professor of Greek in Vanderbilt University, Nashville, and referred to by Preyer in his Appendix (p. 257), exhibits the transition from automatic and mechanical Babbling and Echolalia to Intelligent Speech-production in an even more striking manner. This child, a girl, when only four months old, began in her babbling a curious mimicry of the tones of ordinary conversation. It is reported that, when she was six months old, the articulation in these babbling conversations was singularly distinct. When she was eight months old, it was found that she knew by name every person in the house, as well as a great many of the objects around her. At the eleventh month, she could imitate with accuracy any sound given her; and she indulged in monologues, in which she used a great many real or imaginary words without reference to meaning. But now came the transition step. "After the first year, her facility of utterance seems to have been lost; so that she watched the mouths of others closely when they were talking, and laboured painfully after the sounds. Finally, she dropped her mimicry of language, and, at first very slowly, acquired words with the ordinary infant pronunciation; showing a preference for labials (**p**, **b**, **m**), and linguals (**t**, **d**, **n**, but not **l**)." This case is no doubt exceptional, and Preyer regards it as, up to this time, unique; but it is extremely instructive, as showing, in a very striking and exceptional way, how different is the action of the Cerebrum in babbling and echolalia, from its action in the production of voluntary and intelligent speech.

A subject upon which a few words may still be said, is the order in which the vowels and consonants are produced for the first time, during the earliest efforts at voluntary speech. This order certainly seems to differ from that observed in the production of the babbling sounds. In the latter, it would appear that the vowels and consonants are from the first produced almost indifferently, and with equal ease; only a few—viz., **w**, **s**, **z**, **f**, and **sh**—being, in the case of Preyer's boy, for some months delayed.

In voluntary speech, on the other hand, there is certainly an order of difficulty; though to make out this order in detail many cases would have to be recorded and compared. At present, we can only say:—(1.) As to the vowels, that **i (ee)** and **u (oo)** are the only ones not pronounced with ease from an early period; (2.) As to the consonants, that the three pronounced during closure of the Labial, or first stop-position—viz., **p**, **b**, and **m**—and the corresponding three pronounced during closure of the Anterior Linguo-Palatal, or second stop-position—viz., **t**, **d**, and **n**—seem to be the easiest for the child, and generally the first employed. Everybody knows that the syllables **pa**, **ba**, **ma**, **ta**, **da**, **na**, rank among the first which can be reproduced by the child. The consonants produced during closure of the third stop-position—viz., **k**, **g**, and **ng**—are later in appearing as parts of voluntary speech; and sometimes their appearance is delayed for months, or even for years. Among the fricatives, those which most frequently present difficulties to the child are probably **r** and **l**, and, in a less degree, **sh**, **s**, **ch**, and **y**. Preyer's boy had special difficulty with the **sh** sound as compared with the **s**; but the reverse of this sometimes happens, as is shown by the case of a child observed by Gustav Lindner (see Appendix to Preyer's second volume), who for months used the **sh** sound instead of the **s**.

Another point well worth noting is the "Smudging" or Scamping of the syllables in baby speech. The child omits the consonants difficult to him; sometimes putting nothing in their stead, and sometimes substituting for them others that he can pronounce without effort. He also converts double consonants into single ones. Often he reduces a syllable to such simplicity that the listener can guess at its intention only from the sound of the vowel. In our next paper, we shall see these and other features of baby-speech reproduced in the 'lalling' of weak-minded children.

As to the developmental relationship between walking and speaking, much information will be found in Preyer's work. He shows that some children walk as early as the ninth month, and others not until they are a year and a half, or even two years old. He thinks that much depends upon the surroundings. He is of opinion that "children in sound condition mostly walk before they speak, and understand what is said long before they walk."

In this paper, I have endeavoured to separate the various phenomena from each other, and to consider each by itself; although, as the reader will understand, the processes described are for the most part going on simultaneously during the child's development. Perhaps the Diagram may in some degree serve to keep before the mind of the reader the correlations of the various processes in point of time. Although I have adopted this method of presentation, which is different from that of Professor Preyer, I trust that this paper will suffice to bring before the reader the general conclusions arrived at by Darwin and Preyer regarding the development of speech in the child. Many important facts and much detail have been omitted, but I trust that none of their observations have been mis-stated; and I hope that this brief statement of their views may be useful to the reader, as an introduction to the study of the developmental derangements of speech that I propose to treat of in my next paper.

*(To be continued.)*

## II.—ON CONGENITAL OBLITERATION OF THE BILE-DUCTS.

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(*Read before the Obstetrical Society of Edinburgh*, 11*th November* 1891.)

(*Continued from page* 531.)

### II. OTHER PUBLISHED CASES.

THE following list contains all the cases which I have been able to find reported in which the diagnosis of malformation, obliteration, or absence of the biliary passages was confirmed by a post-mortem examination. In Tables I. and II., the clinical and pathological details of these cases are tabulated for comparison.

1. WEST.—*Diseases of Infancy and Childhood*, eighth edition, p. 649.
2. J. H. MORGAN.—*Path. Soc. Trans.*, xxix., p. 137.
3. EUSTACE SMITH.—*Disease in Children*, third edition, p. 718.
4. HENOCH.—*Lectures on Children's Diseases*, New Syd. Soc. Transl., vol. i., p. 28.
5. C. MURCHISON.—*Diseases of the Liver*, third edition, p. 422.
6. WICKHAM LEGG.—*Bile, Jaundice, and Bilious Diseases*, p. 641.
7. H. ASHBY.—*Pendlebury Hospital Abstracts*, 1883, p. 59.
8. H. ASHBY.—*Ibid.*, 1886, p. 73.
9. GLAISTER.—*Lancet*, 1st March 1879, p. 293.
10. S. WILKS.—*Path. Soc. Trans.*, xiii., p. 119.
11. HARLEY.—*Diseases of the Liver*, p. 299.
12. NUNNELEY.—*Path. Soc. Trans.*, xxiii., p. 152.
13. ROTH.—Virchow's *Archiv*, xliii., p. 296.

14.
15. } C. BINZ.—Virchow's *Archiv*, xxxv., p. 360.
16.

17. DONOP.—*De Ictero speciatim neonatorum*, Berlin Dissertation, 1828, p. 18.
18. C. LOTZE.—*Berliner klin. Wochenschrift*, 1876, No. 30, p. 438.
19. HESCHL.—*Wiener med. Wochenschrift*, 1865.

20.
21. } HENNIG.—*Jahrbuch für Kinderheilkunde*, ix., 1876, p. 406.

22. Freund.—*Ibid.*, p. 178.
23. Oxley.—*Lancet*, 1883, ii., p. 988.
24. Cursham.—*London Medical Gazette*, 1840, vol. ii., p. 388.
25. Lomer.—Virchow's *Archiv*, xcix., p. 130.
26. 27. Schüppel.—*Archiv für Heilkunde*, xi., p. 78, 1870.
28. E. Gessner.—*Ueber congen. Verschluss der grossen Gallengänge*, Diss. Halle, 1886.
29. 30. Köstlin.—Canstatt's *Jahresber.*, iii., p. 293.
31. 32. A. D. Campbell.—*Northern Journal of Medicine*, Aug. 1844, p. 237.
33. Anderson.—*Boston Med. and Surg. Journal*, Jan. 2., 1850, p. 440.
34. 35. A. A. Gould.—*Boston Med. and Surg. Journal*, Sept. 6, 1855, p. 109.
36. H. W. Dean.—*Trans. Amer. Med. Assoc.*, vol. ii., 1858, p. 304.
37. J. Blake White.—*American Journal of Obstetrics*, Jan. 1888, p. 48.
38. Danforth.—*Chicago Medical Journal*, 1870, p. 110.
39. Sir Everard Home.—*Philosophical Transactions*, 1813, p. 156.
40. 41. James Blundell.—Elliotson's *Human Physiology*, 1840, p. 101 (*note*).
42. L'hommeau.—*Bulletins Soc. Anat. de Paris*, 1842, xvii., p. 52.
43. Jenkins.—"On Spontaneous Umbilical Hæmorrhage," *Trans. Amer. Med. Assoc.* vol. xi., 1858.
44. A. R. Simpson.—*Edin. Med. and Surg. Journal*, 1860–61, p. 1045.
45. J. M. Hobson.—*Path. Soc. Trans.*, 1882, p. 183.
46. Paul Meyer.—*Berliner klinische Wochenschrift*, 19th April 1886, p. 255.
47. Walter Thomas.—*New Zealand Medical Journal*, April 1891, p. 161.
48. Dr Cnopf.—*Münchener Med. Wochenschrift*, 21st April 1891.
49. Dr Cnopf.—*Ibid.*, 28th April 1891.

To complete this list, I should mention that Dr West[1] refers to two other cases he has seen, in addition to those he gives details of—that Prof. Virchow[2] mentions his having seen one case—and that a case has been published by Michel[3] and one by Lobstein,[4] of which I have not been able to get any particulars. Trousseau[5] also refers to some cases mentioned by Porchat in his thesis (1859), and I have not been able to find out whether these are among those I have tabulated. Lastly, Witzel[1] has published an account of a child with congenital obliteration of the bile-ducts in addition to a large number of other developmental abnormalities.

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[1] West, *Diseases of Infancy and Childhood*, eighth edition, p. 649.

[2] Virchow, *Gesammelte Abhandlungen für wissenschaftl. Medicin*, p. 858.

[3] Michel, *Correspondenzblatt d. Württemberg. ärztl. Vereinigung*, Stuttgart, H. 33, p. 261.

[4] Lobstein, see Meckel's *Pathologische Anatomie*, i., p. 606.

[5] Trousseau, *Clinical Medicine*. New Sydenham Soc. Transl., vol. iv., p. 317.

We shall now proceed to analyze the tabulated cases (see Table I.)

1. *Rarity of Occurrence.*—Whatever the causes are which combine to produce this lesion, it is evident that they are only very rarely found in combination, for all the reported cases do not amount to sixty in number.

2. *Health of Parents.*—The main point of special interest with regard to the parents' health is the question whether they were suffering from syphilis. The evidence has, of course, to be received with considerable reservations so far as it is negative. In twenty-nine out of the fifty cases, nothing is said about the parents that can be held to bear on this particular. In fifteen it is said that they were "healthy," and, in at least four of these, it is expressly stated that there was no history of syphilis discoverable. Mr Morgan seems to be quite certain on this point with regard to the case which he has reported. In four instances, one parent was certainly syphilitic (or had been), and probably also in a fifth. Therefore out of the ninety-six parents of these fifty children we have evidence of syphilis in five only. It certainly deserves attention that in several cases one or both parents suffered severely from some digestive derangement. It is scarcely likely that this fact can have any etiological importance, but this has been suggested as possible.[2]

3. *Other Children.*—About the other children we notice three things:—

(*a.*) In several instances there had been a large family of healthy children before the patient was born.

(*b.*) In no case is it mentioned that any of the other children had shown signs of syphilis.

(*c.*) Although in several cases the patient was the only child affected in a large family, there is evidently a very remarkable tendency for the disease to occur in more than one child of the same parents. For example, among our fifty cases we find that there twice over occur two cases in the same family (Nos. 14 and 15, 34 and 35). In another instance (No. 22) a pair of twins was jaundiced, and one of them recovered. Then in Anderson's case (No. 33) another child of the same parents suffered, we are told, from both jaundice and hæmorrhage, but recovered; and again, out of seven children in the same family, as Glaister's case (No. 9), four had died jaundiced, and two were less severely jaundiced and recovered; and in the case reported by Thomas (No.

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[1] O. Witzel, *Centralbl. für Gynæcologie*, 1880, p. 561.

[2] Binz, Virchow's *Archiv*, xxxv., p. 360, and Glaister, *Lancet*, 1st March 1879, p. 293.

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# TABLE I

| [illegible] | Reported by | Health of Parents | Other Children | Age at Death | Sex | Premature | Labour | State at birth | Signs of Syphilis. | When Jaundice began after birth | Meconium | Motions | Progress of Jaundice. | State of Nutrition | Position of Hæmorrhages, if present | Ascites. | Spleen |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | None affected | 3½ months. | M | No | Prolonged, forceps | Healthy | None | About 10th day | Normal during 1st week | Clay-coloured after 1st week | Seemed to get rather less | Wasted gradually | From nose, mouth, and bowel | No | Large |
| [illegible] | [illegible] |  |  | 6½ months. | F |  |  |  |  | 3rd day. | Apparently, during 1st day | White after 2nd day. | Increased from 3rd day to 3rd week |  |  | Yes, 1½ pint | Much enlarged |
|  | [illegible] | [illegible] | [illegible] died of congenital heart disease | 9½ weeks | M |  |  | Healthy | None | 11th day | Said to be normal | "Without bile," sometimes contained greenish-brown matter | Began gradually | Good | Subcutaneous and from stomach | No |  |
| 3 | [illegible] | [illegible] | None affected | 4 months. | M |  |  | [illegible] healthy | None | A week | 2 dark stools. | Hard and white | Varied in intensity | Gradually wasted |  | No | Not enlarged |
| [illegible] | [illegible] |  |  | 6½ months |  |  |  |  | None | Present at birth |  | Dry, milk-white | Got greener. | Wasted to a skeleton |  | No |  |
|  | [illegible] |  |  | 5 months | F |  |  | Healthy |  | A few days after |  | Perfectly white, very offensive | Increase, then decrease | Wasted | Subcutaneous and from nose, stomach, and bowel |  |  |
|  | [illegible] |  | None affected | 6½ months | F |  |  |  | Snuffles | Present at birth |  | "Like curds and whey" | Increase, then decrease | Wasted | Subcutaneous, and from the bowel | No | Much enlarged |
|  | [illegible] |  |  | 4½ months | M | [illegible] | Tedious |  | No snuffles or rash | About a week |  | Loose, grey and white |  | Gradually wasted |  | No |  |
|  | [illegible] by |  |  | 4 months | M |  |  |  |  | Present at birth | 2 dark motions | Perfectly white, offensive |  | Fairly nourished at first |  |  | Enlarged |
| [illegible] | [illegible] | [illegible] | [illegible] of whom 4 died of jaundice | 62 hours | M | No | Dry | Healthy | None | On the evening of 1st day | During 1st day | Clay-coloured | Steadily increased |  | Under conjunctiva |  |  |
| [illegible] | [illegible] |  |  | 6 weeks | M |  |  |  |  | A fortnight | White | White. |  |  |  |  |  |
|  | [illegible] |  | Several | 3 days | M | No | Easy | Healthy, not robust | None | Present at birth | Pale, creamy. | Pale, creamy |  |  |  | No |  |
|  | [illegible] |  |  | 6 months and [illegible] days. | M |  |  |  |  | Present at birth | White, sometimes contained green lumps | Light ash grey, sometimes contained green lumps |  | Greatly emaciated |  | A small quantity of yellow serum |  |
| [illegible] | [illegible] |  |  | 4½ months | M |  |  | Healthy | Abscesses, and P.M. conditions thought to show it | Present at birth |  |  | Steadily increased | Emaciated | Into tissue of left lung |  | [illegible] size |
| [illegible] | [illegible] | [illegible] | [illegible] | 2 days | F | No |  | Apparently quite healthy | None | 2nd day | Several very small evacuations. |  |  |  |  |  |  |
|  | [illegible] | [illegible] | Brother [illegible] | 24 hours. | M | No |  | Pretty well developed, cyanotic | None | During 1st day |  |  |  |  |  |  | Very big |
|  | [illegible] | [illegible] | Some healthy | 27 days | M | — |  | Healthy | None | [illegible] day |  | Colourless, clayey, very offensive | Rapid increase |  |  |  |  |
|  | [illegible] | [illegible] |  | More than 7 weeks | M |  | Easy | Healthy |  | Within 24 hours |  | Partly greenish or yellowish, partly ash coloured, almost no smell | Steady increase. | Emaciated steadily | From bowel and from leech bites |  |  |
| [illegible] | [illegible] | [illegible] |  | In 8th month |  |  |  |  | Not the slightest | In first weeks. |  | Light yellowish grey, free from bile during last fortnight | Became deep | Very emaciated |  |  |  |
| [illegible] | [illegible] |  |  | In 7th month |  |  |  |  |  | Present at birth | None passed | Whitish or greyish, offensive |  |  | From bowel |  | Large |
|  | [illegible] |  |  | 5 days |  |  |  |  |  |  |  | Quite colourless | Increased steadily |  |  |  |  |
|  | [illegible] |  |  | A few days. | F | [illegible] | [illegible] presentation, [illegible] pelvis |  |  | Soon after birth |  | Three brown motions. |  |  | On face at birth |  |  |
|  | [illegible] | [illegible] healthy | [illegible] was jaundiced at [illegible] | 3 months and 3 days. | M |  |  | Healthy |  | A few days after birth | Quite white | Quite white, like curds | Increased rapidly | Extremely emaciated |  |  |  |
|  | [illegible] |  |  | More than 6 weeks | F |  |  |  |  |  |  | Like white curd. |  | Emaciated |  | No |  |
| [illegible] | [illegible] |  |  | 7 weeks |  |  |  |  |  | Present at birth | None | White |  | Emaciated. |  | No |  |

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TABLE I.—Continued.

| No. of Case | Reported by | Health of Parents | Other Children | Age at Death | Sex | Premature? | Labour | State at Birth | Signs of Syphilis | When Jaundice began after Birth | Meconium | Motions | Progress of Jaundice | State of Nutrition | Position of Hæmorrhage, if present | Ascites | Spleen |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | Lomer | Father syphilitic | [illegible] healthy, 1 abortion | Still-born | | 6th or 7th month | | Macerated. | Distinct (bones, etc.) | | | | | | | Much sero-sanguinolent fluid | |
| [illegible] | Schuppel | Mother syphilitic | 1st child | On 5th day | F | 4–6 weeks premature | | Poorly developed. | Distinct (eruptions, etc.) | 2nd day. | | | | | | A little greenish fluid. | Twice normal size |
| 27 | Schuppel | Mother apparently healthy | 1 healthy | 8½ days. | F | 37th week. | | | | 5th day | | Quite white | Increased | | From bowel | A little clear yellow fluid | Thrice normal size |
| [illegible] | Gessner | Apparently healthy | 7 healthy | 14 weeks. | M | | Easy | | | Immediately after birth | None | Whitish grey | Increased steadily | | Subcutaneous | | |
| [illegible] | Kostlin | | | 4 weeks | M | | | Healthy | None | 3 weeks, along with abscesses | | Partly yellow, partly greenish | Increased gradually | Good | | | |
| [illegible] | Kostlin | | | 6½ months | F | | | Healthy | | About 6 months, along with erysipelas | | Continued coloured | | Wasted steadily | | | |
| [illegible] | Campbell | | | 10th day | F | No | [illegible] | Large and well developed | | 2nd day | | Constantly light-coloured. | | | Umbilical. | | |
| [illegible] | Campbell | | | 6 months. | | No | | Healthy | | Day after birth | | | Became deep. | Emaciated. | From stomach | | |
| [illegible] | [illegible] | | One other child had jaundice and hæmorrhages but recovered | 12 days | F | | | Apparently healthy | | . | | Clay-coloured. | | | Subcutaneous and umbilical | | |
| [illegible] | [illegible] | Healthy | Brother of next | 11 days. | M | No | Easy | | | | None. | Copious, destitute of bile | | | Umbilical, and from bowel | | |
| [illegible] | [illegible] | Healthy | Sister of last. | 7 days. | F | No | | | | 6th day | One motion of normal meconium | | | | Umbilical. | | |
| [illegible] | [illegible] | Healthy | | 4 days | M | No | | Seemed quite healthy | | 2nd day | | | | | Umbilical | | |
| [illegible] | [illegible] | | Some | On 12th day | | No | Natural and short | 'Seemed physically sound' | | 9th day | Apparently passed as usual | | Got very deep | | | | |
| [illegible] | [illegible] | | | 72 hours. | | | | | | [illegible] hours | | ... | . | | | | |
| [illegible] | [illegible] | | | Several months | | [illegible] | | Usual size | | | . | Regular | | Emaciated. | | | |
| 40 | [illegible] | | | 4 or 5 months | | | | | | | | White, like spermaceti. | | Throve tolerably and grew rapidly | | | |
| 41 | [illegible] | | | 4 or 5 months. | | | | | | | . . | As above. | | As above. | | | |
| [illegible] | [illegible]neau | | | 3 months | | | | | | | | . . | | | Into gall-bladder, as well as "elsewhere" | | |
| [illegible] | [illegible] | [illegible] | | 4 days. | M | [illegible] | | Apparently healthy | | 2nd day | | | | | Umbilical. | | Enlarged (weight 2 oz.) |
| [illegible] | [illegible] | | | About 6 weeks | | | | | | None mentioned | | | | | | A teacupful of yellow serum, with fibrinous flocculi. | |
| 45 | [illegible] | [illegible] | [illegible] | 10 weeks | M | | | | None | Present at birth | Some dark meconium passed after birth | Absence of bile. | | | From stomach (fatal) | . | |
| [illegible] | [illegible] | [illegible] | [illegible] 1 abortion | 4½ months | F | | | | None | 2nd day | | Clay-coloured | Increased before death. | Steadily emaciated. | | | Enlarged |
| 47 | [illegible] | [illegible] very g[illegible] | [illegible] jaundiced before 9th day | 12 days. | | | Easy | | | 2nd day | | ... | Steadily increased. | | | | |
| [illegible] | [illegible] | [illegible] healthy—had been scrofulous | 1st child | 7½ months | M | | Easy | Very delicate | None, except swelling of the epiphysis of one tibia. | 3rd day | | Thin greyish-yellow | Could not get deeper | Very badly developed and nourished. | Subcutaneous, and from bowel. | A litre of clear yellow fluid | Enlarged |
| [illegible] | [illegible] | [illegible] healthy | 2 others healthy | 8 months. | | | | | | 2nd day | | Quite colourless | . | | | . | Small. |

47), four previous children had died with exactly the same symptoms. In the two cases before alluded to, which Dr West mentions without giving particulars, there was also a marked family history of infantile jaundice. It is interesting to note that in the cases of fatal infantile jaundice which have been found post-mortem to be accompanied by pervious bile-ducts, occurrence of the disease in several members of a family is an equally characteristic phenomenon (*v. infra*).

4. *Character of the Labour.*—This is important, because injury or exposure at the time of birth might be the exciting cause of peritonitis, and therefore is of possible etiological importance in connexion with our subject. We find, however, that there is nothing in the statistics of the table to suggest that the character of the labour can be thought of importance. In those few cases in which the labour is said to have been tedious or otherwise abnormal there is nothing in the date of the onset of the jaundice to indicate any probability of injury at the time of birth being the cause of the disease.

5. *State of the Child at Birth and Prematurity.*—The state of the infant at birth confirms the above impression, for in none of the cases (with the exception of two evidently syphilitic ones, Nos. 25 and 26) does anything morbid, except the yellow colour of the skin, seem to have been noticed.

Prematurity is mentioned five times. In none of these cases was jaundice present at birth.

6. *Sex.*—It has often been pointed out that this condition affects more boys than girls, and our table bears this out. Out of thirty-four cases in which the sex is mentioned, twenty-one were boys and thirteen girls.

7. *Symptoms.*—

(*a.*) *Onset of Jaundice.*—The exact period of the onset of the jaundice seems to have varied very much in different cases. Turning to our table we find that this fact is not mentioned in 10 cases.

| | | |
|---|---|---|
| that jaundice was present at birth in | 9 | „ |
| „ it appeared on the day of birth in | 5 | „ |
| „ „ „ second day „ | 9 | „ |
| „ „ „ third day „ | 3 | „ |
| „ „ within a week of birth in | 4 | „ |
| „ „ within 1 or 2 weeks after birth in | 6 | „ |
| „ „ after a fortnight or more in | 3 | „ |

The exact period of onset is, of course, a point with regard to which there are several sources of error. For example, the presence of ordinary icterus neonatorum might obscure the precise date of appearance of the more severe form of discoloration; or want of light or attention might easily lead to its presence being overlooked for several days. Still, taking such difficulties fully into account, there can be no doubt, after studying the reported cases, that in a considerable proportion of them there was no jaundice present until several days after birth, and that the period of onset varies very much in different cases. Also, it is plainly stated in many cases that the jaundice was very faint at birth (or when first seen), and rapidly became more intense—which change suggests that the symptom was not of long standing.

These facts lead one to infer that something or other occurring at or about the time of birth has some relation to the onset of the coloration in many cases.

What period of time should elapse between the obstruction of the bile-duct and the appearance of jaundice in an infant, we do not know. Wickham Legg[1] is of opinion that the time for an adult is twenty-four to forty-eight hours. Murchison[2] says that in patients with biliary colic the yellow discoloration is observed twelve to twenty-four hours after the subjective symptoms have occurred. Little help can be got from observing the time which ligature of the common duct in the lower animals takes to produce jaundice, because this varies widely not only with the different genus operated on, but with the individual animal, and also apparently with the individual operator. In dogs it takes from a few hours[3] to three days,[4] in cats from ten to twenty days,[3] [5] and in guinea-pigs it does not come on at all.

We should naturally think it possible that the action of some external agency, such as violence or cold at the time of birth, might be to blame for the appearance or aggravation of the jaundice soon after it, but this, as already seen, finds no support from facts.

The enormous change which the circulation in the liver undergoes about the time of birth constitutes the most probable explanation of the relation between the onset of jaundice and that event.

It seems very difficult to understand how a child who for months of intra-uterine life has had no bile reaching its intestines (as indicated by entire absence of colour in the fæces from the first) can be born and remain for many days unjaundiced; still this seems to have been so in Wilks' and Freund's cases (Nos. 10 and 22). Jaccoud says that in cases of long-continued obstructive jaundice when the colour passes off, this is due to the fact that the liver may under these circumstances cease to secrete bile. Can it possibly be that the cells of the child's liver, which had long ceased to secrete bile, owing to the permanent blocking of their ducts, are so stimulated by the sudden change in their circulation that their natural function begins again?

(*b.*) *Character and Progress of Jaundice.*—Even when it is absent or only slightly marked at birth, the jaundice always becomes extremely deep sooner or later, and often is of a greenish tinge. It is sometimes noticed to vary a little in severity from day to day, but on the whole it gets steadily worse until it is as deep as it can well be. Towards the end it has sometimes been observed to become a little paler.

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[1] Wickham Legg, *loc. cit.*, p. 257.

[2] Murchison, *loc. cit.*, p. 380.

[3] Charcot and Gombault, *Arch. de physiologie*, iii., 1876, p. 273.

[4] Frerichs, *Klinik der Leberkrankheiten*, 1858, Bd. i., p. 99.

[5] Wickham Legg, *St Bartholomew's Hosp. Rep.*, 1873, vol. ix., p. 161.

It is interesting to observe that in several cases (Nos. 18, 21, 29, and 30) where there is said to have been a certain amount of communication by at least one duct between the liver and the intestine (see Table III.), the jaundice was as marked as in the other cases where the common duct was entirely obliterated. These cases, in fact, form a sort of link between those of complete obliteration and the other cases of jaundice with similar clinical histories, in which pervious ducts are found at the post-mortem (*v. infra*).

(*c.*) *Urine.*—In Dr Nunneley's case (No. 12) it is stated that there was no bile-pigment in the urine. In all the other cases where the urine is described, there was apparently much bile-pigment in it. No other abnormality is noticed.

(*d.*) *Meconium.*—Meconium is to a large extent made up of matters derived from the vernix caseosa which the fœtus in utero swallows along with amniotic fluids,[1] but it also contains intestinal epithelial cells and mucus, and its dark green colour is derived from the bile. It begins to be formed early in intra-uterine life, and in a three months' fœtus, according to Zweifel, both bile-pigment and bile-acids may be detected in it. It gradually accumulates in the intestine until the whole of the lower bowel is distended by it, and at birth it amounts from 60 to 90 grammes.[2] The meconium, which is found lowest down in the bowel at birth, and which has therefore presumably been longest there, has the darkest colour, while that near the cæcum is considerably paler. So far as I know, meconium is never met with without its usual very dark green colour—even light green—except in cases in which there is severe organic disease of the liver or bile-ducts.

When we turn to Table I. we find that in ten out of the fifty cases it is either expressly stated, or else implied, that ordinary meconium, or something similar in appearance, was passed during the first few days.

Some of the infants who passed ordinary meconium were born jaundiced, but in others the discoloration was not noticed for a week or more after birth. With the exception of Köstlin's cases (Nos. 29 and 30), which indeed differ in several points from the others, it seems that in none of the cases was the dark meconium followed by even one motion of normal yellow fæces; the stools at once assumed their cream-colour or clay-colour, even if the jaundice did not come on for some days later. This looks as if the disease was always in a state of considerable advancement at birth.

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[1] Zweifel, *Arch. f. Gynæcol.*, vii., 1875, p. 474.

[2] Vierordt, Gerhardt's *Handb. d. Kinderkrankheiten*, second edition, vol. i., Abth. i. p. 330.

What is the significance of the occurrence of normal meconium in some of the cases, and of perfectly colourless motions from the first in others? When normal meconium is passed it proves that the way from the liver-cells to the bowel must have been open for some time after meconium began to be made, and it therefore excludes the possibility of the obliteration of the duct having been due solely to an arrest of development. Where the discharge is colourless from the very beginning, it points to a very early occurrence of the obstruction. Some reasons might be urged against so early an origin for the lesion, but the entire absence of colour cannot be otherwise satisfactorily explained. We cannot think it possible, for example, that bile passed into the bowel can become decolorised in time, as bile shut up in the gall-bladder sometimes does;[1] for, if so, we should have this occurring also where the liver and ducts were normal. Nor can we reasonably suppose a morbid condition of the liver to have existed before, of such a nature as to give rise to colourless bile like that secreted in congenital syphilitic cirrhosis.

(*e.*) *Motions.*—In about twenty of the cases the motions seem to have been white, greyish, or cream-coloured from the beginning, and in most of the others they became so immediately after the meconium had been passed. In a few, however, we are told that the motions sometimes contained coloured matter at a late stage of the case. These may be divided into two distinct classes,—*firstly*, those in which there was not complete obstruction to the flow of bile from the liver to the duodenum, such as cases 18, 21, 29, and 30, in which a varying amount of yellow, green, or brown matter was observed; and, *secondly*, a few in which green matter was passed along with the grey or white fæces, although the obstruction to the bile-duct must have been quite complete at the time; for example, Mr Morgan's case (No. 2), in which the motions contained greenish-brown matter after a dose of grey powder; and two other cases (Nos. 12 and 17) in which green lumps were seen, and in which no mention is made of their following the administration of mercury.

The former class requires no discussion, but the causation of the green matter (of non-hepatic origin) in the fæces in the latter class is a matter of some interest and obscurity. The subject does not seem to have been as yet very thoroughly worked out, and I have nothing new to offer in explanation of the facts; but it may be worth while to mention briefly a few facts and statements from different sources bearing on them, and these will suggest various possible explanations of the problem as it presented itself in our cases. *Firstly*, then, although no bile is entering the intestines in the ordinary way, it is *possible* that a slight amount of green or yellow colour may be imparted to the fæces by their being mixed with intestinal mucus which is jaundiced, just as the blood and urine are.[1] This, however, explains very little indeed. *Secondly,* It is now believed that the well-known green stools produced by the administration of mercury do not depend, as used to be held, on an increased pouring out of bile, but rather on the formation of a peculiar green compound of mercury and sulphur in the alimentary canal,[2] and Radziejewski[3] has produced green stools by giving calomel to a dog with a complete biliary fistula. In Mr Morgan's case, the green matter appeared after a dose of grey powder, so that some such explanation as this would account for it; and as the other cases most probably got mercury also, it might possibly account for them also.

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[1] Courvoisier, *Casuistisch-statistische Beiträge z. Path. und Chirurg. d. Gallenwege*, Basel, 1890.

*Thirdly,* There is another explanation which is quite tenable in some of the cases, namely,—that the colour may be due to micro-organisms. In this connexion I may refer first to L. Hermann's recent experiments.[4] He operated on a number of dogs by separating a loop of intestine entirely from the rest of the gut, sewing up the ends of it, and then establishing the lumen of the rest of the bowel by sewing the cut surfaces together. In those dogs which died after six days, the separated portion of bowel contained a brownish gelatinous fluid; while those which survived the operation several weeks had the loop of gut full of a firm greyish green mass deceptively like fæces. This greenish material contained innumerable micro-organisms, to the action of which its colour was presumably due. When tested for bile-pigments it gave no reaction. Again, in many cases of infantile diarrhœa the intensely green colour of the stools has been shown by Lesage[5] and others to be due to the presence in enormous quantities of a peculiar chromogenous bacillus, and to have nothing to do with bile. Lastly, I have seen a case where an infant born with complete obliteration of part of the jejunum, and who up to its ninth day had passed only white motions, commenced then to have dark green stools containing large quantities of organisms (micrococci).

(*f.*) *Vomiting.*—In nine of the cases vomiting is mentioned as having occurred, but considering the frequency of this symptom in children this fact does not seem to be of any special importance.

(*g.*) *Hæmorrhages.*—The occurrence of spontaneous hæmorrhages is one of the most characteristic clinical features in these cases. In twenty-one out of the fifty—that is, in fully half of the cases which lived more than a few days—the fact of hæmorrhage having occurred from some part of the body is noted; and in all probability it may have occurred in some of the others also, although not mentioned, as the records of many of them are so meagre.

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[1] Osborne, *Dublin Quarterly Med. Journal*, vol. xv., 1853, p. 106.

[2] Thudichum, *Lancet*, March 30th, 1889, p. 631.

[3] Radziejewski, *Arch. f. Anat. Phys., u. s. w.*, 1870, p. 37.

[4] L. Hermann, Pflüger's *Archiv*, xlvi., p. 93.

[5] A. Lesage, *Le Bulletin Médical*, 26th Oct. 1887; and *Arch. de physiologie norm. et path.*, 15th Feb., 1888.

The situations of the hæmorrhages mentioned are as follows :—

| | | | |
|---|---|---|---|
| Subcutaneous | in | 7 | of the cases. |
| Subconjunctival | „ | 1 | „ „ |
| Umbilical | „ | 6 | „ „ |
| From nose | „ | 2 | „ „ |
| Vomited | „ | 4 | „ „ |
| From bowel | „ | 8 | „ „ |
| From mouth | „ | 1 | „ „ |
| From lung | „ | 1 | „ „ |
| Into gall-bladder | „ | 1 | „ „ |
| From leech-bite (excessive) | „ | 1 | „ „ |

A similar tendency to spontaneous hæmorrhage is well known to exist in all cases of continued obstruction of the common duct, sooner or later, and is almost equally characteristic of a number of other very different morbid conditions which are accompanied by jaundice, such as acute yellow atrophy, yellow fever, phosphorus poisoning, etc. The situations above-mentioned are pretty much the same as those from which bleeding usually occurs in those other forms of jaundice, with the exception, naturally, of the umbilicus.

The occurrence of hæmorrhages in a case of infantile jaundice is always of very serious prognostic significance, but they are not invariably followed by a fatal issue. One such case which recovered is mentioned by Anderson,[1] and another is reported by Henoch.[2] Grandidier, in his very comprehensive article on "Spontaneous Umbilical Hæmorrhage in New-born Children,"[3] mentions thirty-five cases of hæmorrhage from the navel in which the children were jaundiced, and also had ecchymoses, and of these three recovered. As indicating the close connexion between jaundice and hæmorrhage, it may be mentioned that fully two-fifths of all the cases of spontaneous umbilical hæmorrhage which Grandidier has collected occurred in jaundiced infants.

The *cause* of the hæmorrhages has never been satisfactorily explained, although many suggestions as to their mode of production have been made. The hæmatemesis commonly met with in cases of hob-nailed liver is easily accounted for by local interference with the circulation of the gastric mucous membrane ; but in our cases, as also in the various other jaundiced conditions above alluded to, we have subcutaneous and other bleedings which cannot be so explained. We want a theory which will account equally well for all the different hæmorrhages in all the different morbid conditions in which they are found. The following suggestions have been made by different writers:—

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[1] Anderson, *Boston Med. and Surg. Journal*, Jan. 2, 1850, p. 440.

[2] Henoch, *Lectures on Children's Diseases*, New Syd. Soc. Transl., vol. i. p. 27.

[3] Grandidier, *Journal f. Kinderkrankheiten*, May 1859, p. 380.

i. "*Impoverishment of the blood*" is given by Dr Budd[1] as the probable cause of the hæmorrhagic tendency. Murchison[2] also regards it as due to the blood becoming "impoverished by a diminution in the proportion of the red corpuscles and fibrin;" but he observes that it is particularly seen in conjunction with cerebral symptoms and other indications of blood-poisoning. Frerichs[3] says it is due to some change in the blood and its adhesion to the walls of the vessels.

"Impoverishment" means a simple deprivation or lessening of one or more of the normal constituents of the blood; while the very sudden appearance of the hæmorrhagic tendency often observed would rather suggest the adding of something to the blood than the taking away of anything out of it, which one should have thought would more likely have been a gradual process.

ii. *The action of bile-acids in the blood on the corpuscles* is suggested by Leyden.[4] Wickham Legg objects to this, that if the bile-acids in the blood were to blame we should find hæmaturia, such as, he says, always occurs when bile-acids are injected into the circulation, and this is almost an unknown symptom in jaundice. This objection does not appear very forcible, however, when we remember that the experiments referred to were on the lower animals, and not on man, in whom the action may be quite different. Mackay[5] found hæmoglobin always in the urine of rabbits when the ductus choledochus had been ligatured, and exactly the same condition after the intravenous injection of bile or bile-acids.

A more serious objection to this theory consists in the fact that it seems to be only near the beginning of an attack of artificial obstructive jaundice in the lower animals that the blood contains any amount of bile-acids. Mackay found that in the blood of rabbits whose common duct had been tied for more than six days little or no bile-acid could be detected. We should, I think, certainly expect that in this respect man would resemble other animals; and although hæmorrhage is a very early symptom in obstructive jaundice, it is also a very late one.

iii. *A diseased state of the bloodvessels* is said by Wickham Legg[6] to precede and cause the hæmorrhages. He says that Leyden has shown that the bile-acids produce a parenchymatous degeneration of the glands and muscles, and that the bloodvessels are probably affected in the same way. It is difficult to see how this theory can explain the clinical facts at all satisfactorily in the case of jaundice, although a similar one may very probably account for the tendency to hæmorrhage met with in cases of leucocythæmia and some other chronic diseases. The sudden onset of the hæmorrhagic tendency almost simultaneously with the discoloration of the surface of the body, which occurs in so many of the cases, seems alone almost sufficient to disprove the idea that there is an antecedent change in the walls of the vessels. It is a well-known fact that the hæmorrhages occurring in obstructive jaundice are a very early symptom (especially in children[1]); and in several of our cases (*e.g.*, Nos. 35, 36, and 43) the bleeding set in and ended fatally within two or three days of the first appearance of the jaundice. In acute yellow atrophy and in yellow fever,[2] hæmorrhage is a very early symptom also.

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[1] Budd, *Diseases of the Liver*, second edition, 1852, p. 463.

[2] Murchison, *Diseases of the Liver*, third edition, p. 358.

[3] Frerichs, *Klinik der Leberkrankheiten*, 1858, Bd. i. p. 242.

[4] Leyden, *Beiträge zur Pathologie des Icterus*, Berlin, 1866, p. 100.

[5] J. C. H. Mackay, *Arch. für Experiment. Pathol.*, xix., 1885, p. 269.

[6] Wickham Legg, *Bile, Jaundice, and Bilious Diseases*, p. 315.

In several cases on our table no jaundice was observed until a week or more after birth; and it is interesting to note that no hæmorrhage, umbilical or otherwise, took place in these before the jaundice was seen, although the obstruction of the ducts had certainly been complete in some of them at an early period of intra-uterine life. It is also of interest that in no case does there appear to have been any sign of hæmorrhage having occurred during intra-uterine life.

iv. I have more than once heard it suggested that the obstruction to the outflow of the bile interfered with the hæmocyte-destroying function of the liver, and in this way conduced to hæmorrhages by causing a sort of plethora. This theory cannot, however, be seriously entertained, because there is, as a fact, no increase of the number of these corpuscles in jaundice, but rather the reverse.[3]

v. Another theory comes naturally to one's mind on reading the results of recent pathological research, and certainly, *so far as it goes*, it seems to be much more satisfactory than any of the above. It is that the hæmorrhagic tendency is caused by the presence in the blood, not of bile-acids, but of ptomaines, or some similar organic poisons, formed in the process of ordinary digestion, which the diseased liver is not able to render innocuous, as it would do if it were in a state of health.

The facts suggesting this hypothesis may be briefly stated as follows:—

*Firstly*, One of the recognised functions of the liver in the animal economy is to render innocuous in some way various sorts of poisons in the blood.[4] Among the poisons which it acts on thus are the organic ones which are formed in the alimentary canal in the process of digestion.

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[1] Von Schüppel, Ziemssen's *Cyclopædia* (Eng. Transl.), ix., p. 610.

[2] Fagge, *Principles and Practice of Medicine*, vol. i. p. 258.

[3] J. C. H. Mackay, *loc. cit.*

[4] Lauder Brunton, *Pharmacology and Therapeutics*, third edition, p. 402.

*Secondly,* It has been found by Roger[1] that this important function of the organ is closely connected with the amount of glycogen it contains, and varies accordingly, so that when the liver contains no glycogen a very much smaller dose of these organic poisons is required to produce a given result than would be necessary if the organ were healthy in this respect. This has been tested in the case of animals with artificial cirrhosis of the liver, fatty degeneration, etc.

*Thirdly,* It has been demonstrated by Legg,[2] and confirmed by Von Wittich, that ligature of the bile-ducts produces disappearance of glycogen from the liver, the retention of bile seeming to interfere with the proper discharge of the function of glycogen-formation in the hepatic cells.

Now, in the disease we are considering, we are, I think, justified in thinking that there is in all probability a diminution of glycogen in the liver, owing to the forced retention of bile in it, and that the organ may very likely, on this account, be letting past its portal some poisonous product of ordinary digestion which, under its usual conditions, it would have summarily disposed of.

The exact method in which a process of blood-poisoning of this sort would act in causing hæmorrhages we do not know; but it is a well-known fact, that many forms of blood-poisoning are accompanied by a tendency to spontaneous bleeding.[3]

(*h.*) *Convulsions.*—In other serious diseases accompanied by jaundice, such as yellow fever, acute yellow atrophy, and phosphorus-poisoning, convulsions are a common symptom; and in chronic forms of liver-disease they often occur towards the end. In children who are subject to convulsive attacks we should expect them to be met with often in any disease of this kind; and on looking at the published cases, we find that fits are often mentioned—namely, ten times in the fifty. It is interesting to note that convulsions frequently occur in animals after ligature of the ductus choledochus.[4]

(*i.*) *Emaciation.*—Emaciation always occurs if the child lives long enough, but it is not usually an early symptom. This may be partially explained by the fact that the exclusion of all bile from the digestive process interferes to a certain extent (though not very much[5]) with the assimilation of the fatty constituents of the food which are so important to the infant economy. Probably, however, the emaciation is mainly due to the secondary organic changes in the liver-tissue interfering increasingly with the other more important functions of the organ, and with the part it should play in the general metabolism of the body.

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[1] Roger, *Gaz. des Hôp.*, No. 66, p. 525, 1887.

[2] Wickham Legg, *St Bart. Hosp. Reports*, 1873, ix., p. 178.

[3] For references on this point see Runge, *Die Krankheiten der ersten Lebenstage*, Stuttgart, 1885, p. 117.

[4] J. C. H. Mackay, *loc. cit.*

[5] Noël Paton and J. M. Balfour, *Roy. Coll. Phys. Lab. Rep.*, 1891, p. 191.

(*j.*) *Duration of Life.*—On looking over the table we find the following details:—Only one child was still-born (and it was premature); of the others,—

11 lived less than a week.
8 „ more than a week but less than a month.
14 „ from one to four months.
16 „ for upwards of four months (two—Nos. 18 and 48 —into the eighth month).

Therefore, if we exclude those who died of umbilical hæmorrhage, we may say that a very large majority of the cases lived more than a month. These facts seem to indicate two things,—firstly, that the lesion is one which has not of itself a rapid deleterious influence on the general health; and, secondly, that it is not one which is apt to be accompanied by serious complications (with the exception of the hæmorrhages).

In their recent paper, "On the Composition, Flow, and Physiological Action of the Bile in Man,"[1] Drs Paton and Balfour give it as their opinion that the "bile is to be regarded rather as an excretion than as a secretion playing any essential part in digestion;" and they also find that, "even with the bile excluded from the intestine, no less than about 70 per cent. of the fats" (of the food) "are still used." The fact that infants with complete obliteration of the bile-ducts live so long as they do, seems certainly to corroborate the above opinion to some extent.

(*k.*) *Other Morbid Conditions Present.*—Unequivocal signs of congenital syphilis are stated to have been observed either during life, or post-mortem, or both, in five cases (Nos. 13, 25, 26, 46, and 48), and in one other (No. 6) the occurrence of snuffles is noted.

As already stated, there are no serious complications which are usually met with, excepting the various spontaneous hæmorrhages. The immediate cause of death in the different cases is very various. Apparently the disease causes gradual weakening, and any chance intercurrent affection carries the child off. There does not seem to be a predisposition to any special disease.

(*To be continued.*)

## III.—NOTES ON THE EFFECTS OF TIGHT LACING UPON THE POSITION OF THE ABDOMINAL VISCERA.

By JOHNSON SYMINGTON, M.D., F.R.S.E., Lecturer on Anatomy, Minto House, Edinburgh; Examiner in Anatomy, University of Edinburgh.

NEARLY a century ago, when Sömmerring published a second edition of his book[2] on the injurious effects which may result from the compression of the body by corsets, he was able to give a list of no less than ninety-three works in which this question was discussed. Sömmerring's catalogue, which is arranged chronologically, begins with a work by Felix Plater which appeared in 1602. It contains the names of many of the leading anatomists of the sixteenth and seventeenth centuries, and also that of the great social satirist—William Hogarth.

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[1] Noël Paton and J. M. Balfour, *Roy. Coll. Phys. Lab. Rep.*, 1891, p. 191.

[2] C. T. Sömmerring, *Über die Wirkungen der Schnürbrüste*, Berlin, 1793.

Since Sömmerring's time, papers too numerous to mention have been published on this subject; but so far as I can judge from a somewhat limited examination of the literature, most of it is confined to vague generalizations, and one may search a long time without obtaining any definite information based upon careful anatomical observation as to the changes in the position and form of the abdominal viscera resulting from tight lacing.

During the present session I have had the opportunity of dissecting the body of a female in which the effects of tight corsets were very obvious, and essentially similar to, though more marked, than several other cases I had previously observed. I am fully aware that ordinary methods of dissecting are not free from sources of fallacy in determining the position of the abdominal viscera, but I have endeavoured to eliminate such sources of error, and to confine my attention to those points which could be ascertained with accuracy.

The subject was a female about fifty years of age, height 5 feet 6 inches. Head and neck, pelvis, and limbs well formed. The lower part of the thorax was markedly contracted, and the seat of maximum constriction was about 2 inches above the highest part of the iliac crests.

*Thoracic Wall.*—Down to the level of the fourth costal cartilages the intercostal spaces were large and the sternum convex and prominent. This part of the chest was flattened from side to side, the antero-posterior diameter opposite the third costal cartilages being 8 inches and the transverse 7½ inches. The lower part of the thoracic wall was greatly contracted, the lower costal cartilages being pushed inwards, so that the right and left seventh costal cartilages were in close contact with one another from their attachment to the sternum downwards for 2½ inches. Here they were separated by the tips of the eighth costal cartilages, which not only met in the middle line, but slightly overlapped one another. At the level of the fourth costal cartilages the circumference of the chest after the removal of the integument was 27 inches, and opposite the lowest part of the eighth costal cartilages 17 inches; this with slight pressure could be reduced to 16 inches.

*Liver.*—The changes in the position and shape of the liver were not so marked as usually described. In a paper published in this Journal in February 1888, I gave an account of the normal shape of the liver, and endeavoured to demonstrate how readily its form and position could be altered by the pressure of neighbouring organs. The liver has the form of one-half of a cube. If a cube were cut diagonally from its left superior to its right inferior border, the upper and right half would represent the liver. The anterior surface of the liver is therefore triangular in form,—its borders being one superior, another on the right side, while the third is directed obliquely from below upwards and to the left. The lowest part of the right lobe of the liver is usually placed 2 or 3 inches above the highest part of the iliac crest, so that it lies almost entirely above the waist or position of maximum constriction. Consequently the general tendency is for the liver to be pushed upwards and its lower part inwards, so that the right surface, instead of being directed nearly straight down, inclines downwards and inwards. The general compression of the organ tends to the production of the fissures so often found on its upper surface. It would also interfere with the movements of the liver from distension of the stomach, etc. In my specimen, the liver, which was a little smaller than normal, had retained its general half-cubical form. The lower part of the right lobe was pushed inwards, and the right and anterior surfaces showed a distinct depression extending from the lower border, just external to the gall-bladder, outwards and upwards for about 2½ inches. This depression was occupied by the tenth rib. The upper surface of the right lobe had two distinct fissures running from before backwards. One of these was placed about half an inch external to the middle line. The other was near the right side, and lodged a fold of the diaphragm. The transverse diameter of the upper surface was equal to the vertical extent of the right surface, both being 5½ inches. The left lobe extended into the left hypochondrium between the diaphragm and the spleen, and the lower edge of the right lobe was nearly 3 inches above the iliac crest. Almost the whole of the gall-bladder projected beyond the lower edge of the liver.

The liver has often been described as though it were pushed downwards or divided by a constriction into an upper and a lower portion.[1] Such changes are only likely to occur when the liver is abnormally enlarged or the waist unusually high.

*Stomach.*—The vertical extent of the stomach measured from the top of the fundus to the lowest part of the great curvature was 10½ inches. The fundus reached to the level of the anterior part of the fifth rib, and the lowest part corresponded to a line uniting the anterior superior iliac spines. The stomach is obviously much more liable to an hour-glass like contraction than is the liver, as its lower part when distended reaches below the waist. In this case, when the stomach was filled with air it showed a distinct but not very deep constriction situated about the middle of its vertical portion. Just below this constriction the circumference of the stomach was greater than it was near the fundus. The pylorus was placed about half an inch above a line uniting the highest parts of the two iliac crests, and was not overlapped, as it usually is, by the liver.

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[1] See Sibson's *Illustrations of Diseases of the Chest*, Worcester, 1844.

*Intestines.*—Both the small and large intestines were distinctly lower than normal. Mr C. B. Lockwood,[1] in investigating the position of the mesenteric attachment, etc., in cases of hernia, drew a horizontal line across the abdomen at the level of the highest part of the iliac crests. This he called the *base line.* Such a line is very useful in describing the height of the intestines. We have already seen that the pylorus is only about half an inch above the base line. From the pylorus the duodenum passes upwards and to the right, and then turns downwards to join the second part of the duodenum. The latter reaches 1½ inches below the base line. The third part crosses the abdominal aorta and then ascends on its left side, the top of the duodeno-jejunal flexure being 1½ inches above the base line. The whole of the duodenum will be found distinctly lower than normal. Thus, according to Mr Lockwood the duodeno-jejunal flexure is usually 3 or 4 inches above the base line. Owing to its connexion with the suspensory ligament of Treitz, this is the most fixed part of the duodenum, and the other parts are still more displaced downwards.

Almost the whole of the jejunum and ileum were in the pelvis. Their mesentery was not above the average length, but their posterior attachment was depressed, reaching on the right side nearly as low as Poupart's ligament. The ileum joined the large intestines just below the true brim of the pelvis, and the cæcum was entirely within the pelvis. The ascending colon lay in the iliac fossa, and connected on its posterior surface with the iliacus muscle by cellular tissue. The top of the hepatic flexure was only half an inch above the base line. It was nearly 3 inches below the liver, and the commencement of the transverse colon was entirely below the kidney. The loop of the transverse colon dipped down into the pelvis, but its splenic flexure was 2½ inches above the base line. The loop of the sigmoid flexure was in the pelvis.

We have already stated that the maximum constriction of the waist was about 2 inches above the top of the iliac crest, and from the account just given of the intestines, it will be seen that practically the whole of them, both large and small, were below this point.

*Kidneys.*—The lower extremities of these organs were above the iliac crests, the right about half an inch and the left a trifle more. They were pretty firmly fixed in position. The general effect of tight lacing upon these organs is somewhat doubtful. It is often assumed that they are displayed downwards. This may sometimes be the case, but it is by no means a constant effect.

*Spleen.*—This organ was quite normal in its position, lying behind the stomach opposite the ninth, tenth, and eleventh ribs.

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[1] "Hunterian Lectures on the Morbid Anatomy, Pathology, and Treatment of Hernia," *Brit. Med. Jour.*, vol. i. 1889, p. 1136.

## IV.—ABSTRACT OF A PAPER ON "A NEW FORM OF EPIDEMIC SKIN DISEASE."

By THOMAS SAVILL, M.D. Lond., D.P.H. Camb., Medical Superintendent of the Paddington Infirmary.

(*Read before the Medical Society of London, November 30th*, 1891.)

A LARGE number of photographs and coloured drawings of the various phases of the disease were shown, together with charts and tables of the symptoms. Several patients also were exhibited with the eruption in various stages still upon them. After narrating the history of a typical case, the author went on to describe the epidemic as it had occurred in two adjacent buildings, the old Sick-wards of the Paddington Workhouse, and the New Infirmary. Out of 846 patients who were either in these buildings on July 1st, or came in subsequently between that date and October 31st, 163 had been attacked by the disease, 89 males and 74 females, being nearly 20 per cent. Only two cases had occurred amongst the staff—the author himself and a housemaid. All the cases bore a marked resemblance to each other, but exhibited considerable variation in detail.

The disease may be described as a universal dermatitis, sometimes attended by the formation of vesicles, and always resulting in the desquamation or exfoliation of the epidermis; attended by a certain amount of constitutional disturbance, and running a more or less definite course of seven or eight weeks. The skin lesion commenced sometimes as a papular or papulo-erythematous rash; sometimes as raised maculæ, and in some rare cases as rings; but however it begins, the various elements become confluent in from three to eight days, and produce a crimson, irregularly indurated surface which is continually shedding its cuticle in flakes or scales of various size, from impalpable powder to the entire cast of a hand or foot. If exudation were present this entangled the flakes of epidermis and formed crusts. A large proportion of the cases were attended by a serous exudation from the formation of vesicles, which were easily broken. By this feature Dr Savill divides his cases into two groups,—the "moist" type to the number of 100, and the "dry" type, of which there were 45; 18 being of a mixed type. Several independent areas would be involved at different dates, but they all ran the same course. This condition of things lasted some weeks, several layers of cuticle being shed. By degrees the inflammation subsided, leaving the skin considerably thickened, indurated, and wrinkled. In many cases the new skin presented a raw, parchment-like appearance, smooth and shiny, and sometimes cracked.

The eruption most frequently started on the upper arm or fore-arm (37 cases), but almost as frequently on the face or scalp (35 cases), 24 being on the feet and legs, 22 cases on the hands, 13 cases on the back, 12 on the neck, and a like number on the chest or abdomen.

The eruption in most cases spread by contiguity to the neighbouring parts, and in quite half of the cases the whole surface of the trunk and limbs was involved. The disease began and ended very gradually. In some cases it was preceded by lassitude and loss of appetite, and not unfrequently the eruption would make a false start. Convalescence was tardy, and 38 of the patients had one or more relapses. Considerable irritation of the skin, and a feeling of burning and itching, were always present throughout the disease.

Of the constitutional symptoms, anorexia and prostration were the chief; the feeling of lassitude and weakness was present in all cases; they were often profound, and in some the asthenia was fatal. The temperature remained normal, or even subnormal, excepting when a large extent of skin was involved, and the inflammation was at its height. The tongue was at first coated, but soon shed its epithelium. In something like a quarter of the cases, vomiting or diarrhœa, or both, were present. The conjunctivæ were inflamed in all the severe cases, and those where the face was involved. The other epidermal structures, hair and nails, shared in the disease in its later stages, and were shed.

In 50 per cent. of the cases in which the urine was examined, albumen was found, though permanent damage to the kidneys was not noted in any as a result of the disease.

The mode of termination in fatal cases was sometimes by collapse consequent on the vomiting and diarrhœa, or more generally by the extreme weakness produced by the eruption. Some died comatose, as in uræmia. Dr Savill connects two symptoms with a fatal issue,—a muscular twitching and embarrassed respiration without physical signs in the lungs.

Several of the cases were complicated with boils or carbuncles scattered about the body; and in some, the skin remained pigmented for long after the eruption had subsided.

The affection has to be diagnosed, in the first place, from erysipelas, especially when it attacks parts containing loose cellular tissue. This is effected by its gradual advent, the absence of pyrexia, in some cases by the presence of vesicles, sometimes by the absence of a raised margin, and sometimes by the wide extent of the rash. Those cases which commenced as maculæ bear some resemblance to German measles, but the absence of pyrexia and the extreme desquamation are sufficient to distinguish them. The "dry" variety of cases bore a striking resemblance to pityriasis rubra, but they differed in the fact of their being epidemic, and in children being almost exempt. Moreover, since we must conclude that Dr Savill's cases were all one disease, and the "moist" type, which were in the majority, so widely differed from pityriasis rubra, we must also conclude that the other cases did not belong to this category. On the whole, the malady bears more resemblance to acute general eczema than any other known disease; but a typical case differs considerably from this disease in the extent and severity of the dermal inflammation and thickening, in the profuseness of the exfoliation, and in its more definite and fatal course.

The only treatment which availed was the external application of germicides, and the administration of stimulants.

The author then proceeded to consider the question of etiology. Age was certainly a very important predisposing condition, for although the Infirmary contained a relatively large number of aged persons, still it was shown that if the inmates were classed according to age into decades, the percentage of those attacked in the earlier decades was considerably smaller than the percentage in the later decades. Thus, of those between 1 and 10, 2 %; 10 and 20, 4 %; 20 and 30, 7 %; 30 and 40, 6 %; 40 and 50, 17 %; 50 and 60, 24 %; 60 and 70, 38 %; 70 and 80, 35 %; 80 and 90, 24 %. Males seemed more prone to take the disease than females in the proportion of 24 to 16 per cent. After discussing, and excluding, food, soap, scabies, and water as possible exciting causes, the question of epidemic influences, such as climate, season, and contagion, were referred to.

The clinical phenomena of the disease are alone almost sufficient to stamp it as contagious; its more or less definite course; the constitutional disturbance; the marked effect of germicides; the wave-like manner in which the outbreak had come and gone; and the fact that 6 out of the 11, who were the only ones out of 202 healthy persons to contract the disease, were "helpers" tending on sufferers from the disease. Nevertheless, the contagion is evidently of a feeble order, and seems to require several important predisposing conditions, especially including old age, and sickness, or "hospitalism," for its development. The bacteriology and several other points connected with this strange outbreak required careful investigation, and would form the basis of a future communication.

In the discussion which followed, which occupied the whole evening, Drs Stephen MacKenzie, Radcliffe Crocker, Richards, Startin, and others, took part. It was generally admitted that the disease did not correspond to anything hitherto described, though resembling eczema on the one hand and pityriasis rubra on the other. Its epidemic character was thought extremely interesting, and the results of the bacteriological inquiry was anxiously awaited.

## V.—INTUBATION OF THE LARYNX IN LARYNGEAL DIPHTHERIA, WITH NOTES OF FIFTEEN CASES.

By G. HUNTER MACKENZIE, M.D., Surgeon for Diseases of the Throat and Nose to the Eye, Ear, and Throat Infirmary of Edinburgh; late President of the British Laryngological and Rhinological Association.

THE operation of intubation of the larynx as now performed consists, as is well known, in the introduction *per vias naturales* of a metal tube so constructed that its upper extremity or head rests upon the ventricular bands and between the arytenoid cartilages, whilst its stem extends downwards through the glottis into the trachea. Any obstruction to the breathing located in the larynx will thus be cleared by the tube.

The operation appears to have been first performed by a French surgeon, but it is to Dr O'Dwyer of New York that credit is due for having established it on a practical basis. By careful experimentation and accurate measurements this investigator has succeeded in devising a set of instruments and a series of tubes appropriate to various ages, and it is with these instruments and tubes that the operations in the cases now to be recorded and commented on were performed.

In O'Dwyer's operation the child to be operated on is firmly enveloped in a blanket or sheet; he is then held by the nurse in the semi-erect position, with the head reclining on the left shoulder; a mouth-gag is then inserted on the left side, and firmly held, along with the child's head, by an assistant. The operator now selects the tube appropriate to the age of the patient, passes a thread through the eye in its head, attaches it by means of a screw in its pilot or obturator to the inserting instrument or applicator, and then, standing on the right side of the patient, endeavours, with the assistance and under the guidance of the left index finger passed through the mouth and hooking up the epiglottis, to insert it in the larynx. The insertor and obturator are now detached by means of a sliding arrangement in the handle of the applicator, and the tube alone is, or ought to be, left in the larynx. The operator now waits a few seconds, or possibly minutes, in order to decide whether the tube has been properly located in the larynx, or has been passed into the gullet. If successful, a beneficial effect on the respiration is almost immediately manifested, and a peculiar metallic or clangy cough is developed, which, when once heard, cannot be mistaken. Should, however, the tube not have been properly placed in the larynx, as evidenced by the absence of the peculiar cough and of relief to the respiration, it must be withdrawn by making traction on the thread, and another attempt at insertion made. It may be here remarked that beginners usually require to make several attempts before succeeding. If the operation has been successful, the thread is either withdrawn, care being taken whilst doing so to steady the tube by the left index finger, or is left attached, in which case it may be taken across the cheek and fixed around the external ear. Whilst the maintenance of the thread adds to the irritation experienced by young patients, and aggravates the difficulty in swallowing by making traction on the epiglottis, it is probably better and safer for one who has not had much experience of the operation to allow it to remain attached, as by it the removal of the tube is greatly facilitated.

The length of time during which the tube ought to be left in the larynx varies somewhat with the nature and indications of each case; but, as a general rule, it may be said that it ought not to be allowed to remain longer than twenty-four hours without being withdrawn for purposes of examination and testing the respiration. If necessary, it can then be reinserted. To permit of removal, the patient is put in the position already described for the operation; the extractor is passed in the same manner as the applicator, and in such a way that its tapering extremity projects into the upper opening of the tube. A lever is then depressed by the right forefinger; this fixes extractor and tube, and both are withdrawn. If the thread has been left attached, the use of the extractor is not necessary, as simple traction will suffice to remove the tube.

In theory the operation is simple enough, and of easy performance, but in practice it will occasionally be found beset with some difficulties. These may be in connexion with insertion of the tube, with its dislodgment by coughing, with its blockage, with its interference with swallowing, and with its removal, more especially when the thread has been detached or been bitten through by the patient. A careful consideration of these difficulties and drawbacks, and more particularly of the advantages or disadvantages of the operation as compared with tracheotomy, is incumbent upon all; for there is no practitioner who may not at some time be suddenly brought face to face with a case of laryngeal diphtheria necessitating the performance of intubation or tracheotomy. The following notes of cases, with comments, are submitted as a contribution towards the solution of these important points:—

CASE I.—Girl, aged 8 years, 12th December 1888. The patient had been suffering for several days previously from what seemed at first to be acute tonsillitis, with considerable fever (E. T., 105°). The tonsils and adjoining parts of the pharynx were greatly swollen; on the 8th a patch of ulceration with membrane appeared on the right tonsil, which on the following day extended to the left; invasion of the larynx on the 10th; urgent dyspnœa and intubation under chloroform on the 12th. The first two attempts were unsuccessful; the third succeeded, but the thread attached to the tube having been caught by the insertor on its withdrawal, caused displacement of the tube. It was immediately and finally reinserted, and the thread withdrawn. The patient died twenty hours after intubation. The leading features after the operation were relief of the breathing, aggregation of mucus in the larynx or tube, and difficulty in its expectoration; swallowing fairly satisfactory, with the occurrence of occasional spasm during the act, and marked failure of the pulse some hours before death.

This was the first case in which I performed intubation, and is the only one in which I administered an anæsthetic. After further experience I found that, with efficient assistance, it could be done very easily without anæsthetizing the patient. The second unsuccessful attempt to introduce the tube was due to the patient's head being placed too low, and to the tube becoming prematurely detached from the obturator, partly owing to faulty construction of the instruments. This case indicates the necessity of keeping clear of the thread on withdrawal of the insertor, otherwise displacement of the tube is bound to ensue. The relief to the breathing afforded by the operation in this case was not complete, and death resulted, partly from respiratory obstruction, and partly from cardiac and general exhaustion.

It may be added that the mother of the patient died during the following week of laryngeal diphtheria, for which tracheotomy was performed. On comparing the results of the respective operations in these two cases, I was inclined to think that intubation gave the greater relief, and was productive of the less discomfort.

Case II.—Child, aged 21 months, 1st March 1889. I was asked by Dr P. A. Young to see this case, and if necessary to perform intubation. The child was reported to have been "croupy" for a day or two; now there were marked laryngeal dyspnœa and stridor. No. 2 tube was introduced on the third attempt; the breathing was immediately relieved, but inspiration was not so satisfactorily performed as one could have wished. The thread was not detached from the tube. The child was reported to have gone on fairly well until four hours after the operation, when sudden profuse hæmorrhage from the mouth and nose set in, and death immediately ensued. On inspection after death, the tube was found lying in the oro-pharynx, blocked with coagulated blood. Membrane was found in the larynx, and erosions of the left inferior (posterior) laryngeal artery and vein were found.

The fact of the tube being found in the oro-pharynx was due to the attempts of the nurse to remove it after death, by pulling on the thread. Regarding the hæmorrhage, if, as seems probable, this came from the eroded vessels, it must be regarded either as an incident of the disease or as a result of the operation. If the latter, it must have been from pressure of the lower extremity of the tube upon the vessels. On experimenting with the tube I found that, when *in situ*, its lower extremity did not correspond with the locality of the erosions, and I therefore came to the conclusion that the disease itself was the cause of the bleeding. The appearance of the erosions also favoured the idea of their being due to a non-traumatic, ulcerative cause. Blocking of the tube by blood was doubtless the immediate cause of death in this case. If, as in this case, *sudden* accession of dyspnœa occur when the tube is in the larynx, it ought at once to be removed, examined, cleared of any obstruction that may be present, and reinserted, if necessary.

Case III.—Boy, aged 3 years, 11th March 1889, under the care of Dr Hamilton Wylie. The child had been suffering from diphtheria of the pharynx for about a week. The disease had now extended to the larynx, as indicated by the signs of marked laryngeal obstruction; great restlessness was present. Intubation was followed by immediate and complete relief to the breathing. 14*th March—Morning.*—The patient has breathed continuously well since the operation (three days); there is, however, a good deal of difficulty in swallowing, and the temperature keeps high (E. 105°, M. 104°·5). The pulse is quick, regular, and weak. *Evening.*—The patient died at 8.30, after the supervention of great and sudden difficulty in breathing. An inspection was not permitted. The tube was found almost completely blocked with thick, glutinous, almost membranous material, which was removed with difficulty, even after maceration in hot water.

There can be little doubt that, in this case, the tube was permitted to remain too long in the larynx without removal for examination and cleansing purposes. It was my intention to have removed it in about twenty-four hours after the operation, but the breathing continued so satisfactory as to induce me to refrain from disturbing it, and let well alone. As in the preceding case, we have the child suffocated from blockage of the tube, an occurrence which I now think ought to happen very rarely, or not at all. The result was rendered all the more disappointing by the fact of the breathing having continued so good from immediately after the operation until just before death.

The high temperatures were partly due to a pulmonary complication (catarrhal pneumonia) which was present prior to the performance of the operation.

CASE IV.—Boy, aged 10 years, 31st March 1889, under the care of Drs M'Leod and M'Ewan, Dundee. There was the usual history of progressive laryngeal stenosis, but the cause of this was at first somewhat obscure. Intubation was performed at 8 P.M., the tube being properly inserted on the first attempt. The breathing was immediately relieved, but did not become quite free until several hours after the operation. *1st April.*—P. 120, T. 103° ; the patient had passed a good night, and had swallowed very fairly indeed. He received some antipyrin, and was stimulated freely. *2nd April.*—The patient continued to progress satisfactorily ; the pulse was better, and the temperature had fallen two degrees. He had nutrient enemata, and was still stimulated freely. At 7 P.M. the tube was removed. *3rd April.*—Temperature normal ; breathing easy, and patient quite comfortable. He had passed a quiet night, and had slept well. *5th April.*—I was recalled to Dundee this afternoon, and found a relapse had occurred. The breathing was again obstructed, expiration being particularly prolonged and laboured. I again inserted the tube, which was twice expelled by severe attacks of coughing ; very little relief to the breathing followed. The patient gradually sank, and died on the 7th, one week after the first intubation, with all the signs of obstructed respiration. On inspection of the larynx, etc., after death, firm diphtheritic membrane was found extending from the glottis through the trachea into the bronchi.

Nothing could have been more satisfactory than the progress of this case after the first operation. The downward extension of membrane to the bronchi, indicated during life by the peculiar laboured wheezy expiration, and by the auscultatory phenomena, accounted for the absence of relief after the second operation, and would have rendered equally nugatory any other surgical procedure, such as tracheotomy.

CASE V.—Boy, aged 4½ years, 30th May 1889, under the care of Dr Henry Hay. Diphtheria of the pharynx and larynx, with great laryngeal obstruction. Intubation was performed. Some difficulty was experienced in getting the tube corresponding to his age properly located in the larynx, and it had ultimately to be withdrawn and a smaller one inserted. The tube was coughed up after having been in position for one hour ; it was allowed to remain out for three hours, but the laryngeal dyspnœa having become more intense, the larger tube was again tried, without, however, appreciably affecting the breathing. The thread was left attached to facilitate removal of the tube should it again have been coughed out of the larynx. The child died four hours afterwards. Autopsy revealed diphtheritic membrane in the larynx, especially about the vocal cords, the epiglottis, and the infraglottic region. The tube could not be found in the larynx, pharynx, or mouth, but was discovered in the gullet, close to the stomach. As the result of a series of post-mortem experiments, it was found that the insertion of the tube in the larynx was not easy, principally on account of the membrane, which was very abundant about the *aditus laryngis.*

The leading feature in this case, apart from the general result, was the swallowing of the tube. The thread was left attached, for the reasons already stated, and was bitten through by the patient. The tube must either have been expelled from the larynx by coughing, or it must have been drawn out by traction on the thread. From one or other of these causes the tube changed from the larynx to the pharynx, and was swallowed. Similar cases have been recorded by other observers; in some of those the tubes were expelled *per anum.* From the fact that the patient swallowed milk with great ease during the last hour of life, I am inclined to suppose that the accident must have occurred shortly before death.

This case is that in which I experienced the greatest difficulty in inserting the tube appropriate to the age of the patient, and of this the abundant membrane at the entrance to the larynx was evidently the principal cause. I am now of opinion that it is a mistake to persist with intubation under such circumstances, and that recourse should rather be had to tracheotomy. Had this been done in the present instance, the locality of primary obstruction would have been cleared, and greater relief would consequently have been afforded to the patient.

(*To be continued.*)

## VI.—THE CLINICAL STUDY OF OPHTHALMOSCOPIC CORNEAL IMAGES.

By Ernest E. Maddox, M.D., Edinburgh (late Syme Surgical Fellow, Edin.)

It is well to know in how many ways the much-neglected reflection from the cornea, which often puts us to inconvenience in ophthalmic work, may redeem its character by doing good service in other directions.

Sometimes much time and trouble is spent over doubtful cases of strabismus, in the endeavour to ascertain whether they are apparent or real, when the matter would be at once settled by noticing the position on each cornea of the image formed by throwing the light on it by reflection from the ophthalmoscope.

The patient should be directed to look at the central aperture of the ophthalmoscopic mirror, which is held in the usual position before the observer's eye at a distance of about two feet from the patient.

A brilliant spot of light will then be seen on each cornea, as the light is thrown first on to one eye, then on to the other. In at least one cornea the image will be seen to occupy what may be called the *fixation position*, viz., near the centre of the pupil, and generally a little to the inner side of it. This eye is therefore fixing the centre of the mirror. If the image on the other cornea occupy a very different position the latter is the squinting eye. If, on the other hand, the two images occupy *symmetrical* positions in the two corneæ, there is almost certainly no strabismus: there is only one possible fallacy[1] and that a very unlikely one, and even this is removed by taking the precaution to cover first one eye, then the other, to ensure that each image remains unmoved from its former position when the fellow eye is covered. Should the two images occupy slightly different positions, the case may be one of squint, or may not. If, on covering one eye, the image on the other cornea shifts to a different position from that occupied when both eyes are uncovered, the case is certainly one of strabismus, and the squinting eye is that one on whose cornea the image shifts its position. Suppose, however, there be no such shifting with either eye, and yet the spots of light are unsymmetrical, what is it then? It is either one of those cases in which some part of the retina other than the fovea centralis has became the new point for fixation, the whole field of vision having shifted its position; or else it is a case in which the angle $\gamma$ (to be explained shortly) is different in the two eyes. We are helped in this difficulty by the consideration that when the field of vision shifts, it generally takes a very long time to do so, and the squint is almost always of high degree, whereas the difference between the two angles $\gamma$ is always comparatively very small. Cases, therefore, in which any doubt as to their nature could be felt, must be very rare.

It will now be well to give a simple explanation of the angle $\gamma$. It is the angle between the "optic axis" and the "line of fixation;" or, in other words, between the geometrical axis of the eye and the functional axis of the eye. The "optic axis" may for clinical purposes be considered as the antero-posterior axis on which the eye is built, passing from the centre of the cornea in front to the posterior pole of the eye behind. The centres of the various media lie in it, as well as the centres of curvature of their surfaces. It is, therefore, the *geometrical* axis of the eye. It is true that all the centres referred to do not lie exactly in this line, but in a clinical paper it is important to weed out the scientific refinements which may with safety be neglected. Curiously enough, we do not see straight out of our eyes, but obliquely out of them. In other words, the functional axis of the eye is inclined at an angle to the geometrical axis. The degree of this angle differs in different persons. It depends on the fact that the "fovea centralis" is not situated exactly at the posterior pole of the eye, but generally to the outer side of it, and since the "line of vision"[2] of course connects the "fovea centralis" with the object looked at, and since it *must* pass through the nodal point of the eye, it follows that it cuts the cornea to the *inner* side of the geometrical axis. As a matter of fact the average angle between the two axes is about 5° in each eye. It follows that when we look at a distance, and our *visual lines* are practically parallel, our two *corneæ* really diverge from each other (*i.e.*, face outwards) by an angle of 10°. We are not only so accustomed to this that we do not think it a squint, but when the angle is absent, as it is in some myopes, so that the eyes look straight geometrically as well as functionally, we miss the natural discrepancy, and are apt to consider the case one of convergent strabismus. Differences in the angle $\gamma$ constitute so-called "apparent strabismus," for the detection of which corneal images are invaluable. In hypermetropes the angle $\alpha$ (which we may consider for practical purposes as identical with the angle $\gamma$) is generally greater than in emmetropes, the average being given by Donders as 7° 55′. I have noticed that in hypermetropic astigmatism, in which the horizontal meridian possesses the least curvature, the angle is also generally greater than in emmetropia. In myopes the angle tends to be less than in emmetropes, and may be "nil," in which case the two axes coincide; or even negative, in which case the visual line lies on the other side of the optic axis. Donders gave the average in myopia as less than 2°.

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[1] The fallacy referred to could only occur if the difference between the two angles $\gamma$ were great enough to equal, and disguise, the squint.

[2] For practical purposes the line of vision and the line of fixation may be taken as coincident. Really they are not the same.

The angle $\gamma$ may be different in the two eyes. When this is the case, it is generally associated with a difference in refraction, but not always. It is of much clinical interest to know that the position of the corneal image when the eye is fixing the virtual source of light, or, in other words, the "fixation position" of the corneal image, maps out with fair precision that spot of the cornea which is traversed by the visual line.[1] It therefore generally lies, not in the centre of the pupil, but a little to the inner side of the centre, even though the pupil itself lies generally nearer the inner than the outer margin of the cornea. We are able, therefore, in a sense, to *see* what part of the cornea is traversed by the line of vision, and by the distance at which this point lies from the centre of the cornea we are able to guess approximately the amount of the angle[2] of the obliquity of vision in the eye under observation. Any instance of an unusually high or low angle at once strikes us, and may set us to try and account for it by looking for some abnormal condition of refraction, or unusual shape of the eye.

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[1] I arrive at this by taking the centre of curvature of the cornea as coincident with the nodal point of the eye; it is not really quite coincident, but the discrepancy is more or less neutralized by the ellipsoidal shape of the cornea, and therefore for practical purposes the simplification is permissible.

[2] The angle $\alpha$ is the angle between the "line of vision" and the optic axis: the angle $\gamma$ is that between the "line of fixation" and the optic axis. The "line of vision" extends from the object fixed through the nodal point to the fovea. The "line of fixation" extends from the object fixed to the "centre of rotation" of the eye.

The discrepancy between the angles $\alpha$ and $\gamma$ in a given eye is greater (1) the nearer the object fixed, and (2) the higher both angles are.

In the *Græfe und Sæmisch Handbuch*, Snellen and Landolt truly observe "We can for practical purposes quite well take the angles $\gamma$ and $\alpha$ as equal to each other."—Band iii., p. 211.

It is now a great number of years ago since corneal images were used to measure the radius of curvature of the cornea by the aid of the ophthalmometer invented by Helmholtz. Rather later, the flame of a candle, movable along the arc of a perimeter, was used to measure strabismus, by noting the position of the candle on the arc required to bring its image into the centre of the cornea of the squinting eye, the observer viewing the image from just behind the candle. Later still, Hirschberg showed how, by holding a lighted taper before the patient's face in a case of strabismus, the degree of squint could be guessed by remarking the part of the cornea occupied by the image of the flame. His method does not seem to have come into use, perhaps for want of sufficient elaboration in detail, and too much neglect of the angle $\gamma$. His method, however, is certainly of value, by enabling us to guess the amount of squint present.

*Ophthalmoscopic* reflections from the cornea do not appear to have been utilized at all, till comparatively recently Priestley Smith showed how the image on a squinting eye can be used to measure the squint by his excellent "tape method," to which I am indebted for interesting me in corneal images. I leave, however, to be treated elsewhere the subject of the measurement of squint, confining myself now to its ophthalmoscopic detection and analysis, as being of value in general practice.

Does one eye always squint, or either indifferently, is a question to be always put to one's self. In other words, is the squint "alternating" or "monolateral"? In those of high degree it is most easy to settle this without the aid of corneal reflections, by simply covering the fixing eye for a few moments, so as to make the other one take up fixation instead. If the latter continues to fix after the removal of the hand, the squint is seen to be transferred to the eye which at first was straight, and the case is one of alternating strabismus. With minute squints it is not so easy to make out this point, and corneal images give immense assistance by letting us see at once which is the fixing eye: it is of course that eye in which the image occupies the fixation position: we can easily observe then, whether by covering this eye the other can or cannot be made to take up fixation. Another still more important point to settle is that of "concomitancy," because by this alone can we tell whether or not a squint is *paralytic*. By concomitant squint we mean one in which the degree of squint remains the same when the patient looks in different directions. In paralytic cases, on the contrary, the squint increases on looking in the direction of action of the paralysed muscle. Thus, in paralysis of the right external rectus, the squint increases on looking to the right, and so on. To test for concomitancy, I can strongly recommend the following simple method. Holding the ophthalmoscope in the usual way with the right hand, lay the palm of the left hand on the patient's head, with instructions to let the head follow the most gentle guidance of the hand without any resistance in the neck. Now bid the patient look at the central aperture of the mirror while the light is thrown on the squinting eye, and the exact position of the corneal reflex noted. Now slowly turn the head to the right and left, then up and down, etc., and notice if the position of the reflection is unchanged by these manœuvres: if it is unchanged, the squint is concomitant. It is true that such observations require a good deal of practice before certainty can be acquired, but the same is true of retinoscopy, ophthalmoscopy, etc., and there is no reason why corneal images from the ophthalmoscope should not receive sufficient attention to gain the requisite dexterity. As it is, they do not seem to be even mentioned in the text-books.

Vertical squints, if slight, are often difficult to verify at first sight, for if any ptosis be present in a case where there is no squint, the appearance is misleading. Corneal images at once clear up such cases, by letting us see if they are of equal height on the two corneæ.

I have found corneal images come in very usefully in the examination of the eyes of babies. Sometimes when their vision is imperfect, or the two eyes do not work well together, it is not easy to tell if they possess power of fixation; and I have found it useful to reflect the light of a flame into each eye in turn, to see whether the corneal image occupies the "fixation position."

Another application of corneal images, which I think I have worked out, is to use them in testing for binocular vision after operations for strabismus. Because the eyes appear to be set straight it does not follow that they possess stereoscopic vision, and by subjective tests it is sometimes exceedingly difficult to know whether binocular vision is restored or not, the patients being frequently young children too unintelligent to give us any assistance. An objective test is therefore a great help. To make it we proceed as in testing for concomitancy, making the patient slowly turn his head from side to side. After operation, for some weeks at least, the eye operated on tends to remain more stationary than its fellow, so that, by turning the head slowly to the right or left, we make, if binocular vision is absent, the corneal image on the squinting (and operated) eye slowly and steadily move across part of the cornea. If binocular vision be present, it *may* be strong enough to overcome the sluggishness of the squinting eye, in which case its image remains in the "fixation position" throughout. But even if the desire for single vision is not strong enough to effect this, there is always, if it be present at all, a part of the field of fixation over which the "fixation position" is maintained, and at the edge of this region it *suddenly* moves to another point. It is the continued maintenance of the fixation position during lateral movements of the head, or else the sudden abandonment of the fixation position, instead of only gradual moving away from it, on which I count in making the test.

I hope it will be evident, from the uses which have been enumerated, that corneal images are well worthy of more attention, both by surgeon and physician.

## VII.—THE FUNCTION OF THE PERONEUS TERTIUS MUSCLE.

By W. RAMSAY SMITH, B.Sc., Demonstrator of Anatomy, Edinburgh School of Medicine, Minto House.

RECENTLY, in the course of studying the actions of the muscles of the lower extremity with the view of determining what muscular movements take place in walking, I was fortunate to meet with some clinical cases worth recording. In this note I shall confine my remarks to two cases illustrating the function of one muscle, the *peroneus tertius.*

The first case was one in which the peroneus tertius of the left side was subjected to a continued strain by the patient sitting for an hour or two in a cramped position, with the heel on the ground, the ankle-joint fully extended, and the toes turned in. When the patient, in the act of walking, placed the heel on the ground and allowed the weight of the body to fall on the advanced leg, the sole of the foot came down all at once with a *flop—flop,* and pain was felt at each step taken with this foot. The pain was referred to a spot corresponding to the origin of the peroneus tertius muscle. The patient found it impossible to stand on the heel of the left foot: every attempt to do so resulted in the sole of the foot coming down *flop* on the ground, and was accompanied by intense pain in the part of the leg I have referred to. On carefully testing the condition of the extensor longus digitorum, extensor proprius hallucis, and tibialis anticus muscles, I could discover no abnormality; the power of these muscles to resist flexion of the toes and extension of the ankle was as great as usual, and no pain was elicited by such testing. This condition of paralysis continued for about three days, when the muscle gradually regained its power. During that time walking was practised by keeping the knee slightly more bent than usual, turning the toes slightly more outwards, and placing the sole of the foot on the ground at each step of the left foot. In this way there was no pain accompanying the act of walking, and the difference of gait was scarcely perceptible.

The second case was one in which the patient, on descending from a high leap, alighted on the ground on his right heel, the ankle being at the time extended. The symptoms in this case were similar to those in the former, only they were more aggravated; and examination showed that the extensor longus digitorum, particularly the outer part of it, was also involved in the strain. The power of this extensor to resist flexion of the toes was impaired, and the pain in the leg was correspondingly increased in its distribution. The act of walking was performed as in the former case.

These two cases illustrate very clearly the action of the peroneus tertius as a muscle of ordinary walking when the heel is the first part of the foot to touch the ground. Acting with the tibialis anticus, and aided by the extensors of the great and other toes, it prevents the foot from coming forcibly down on the ground, which it tends to do, as soon as the weight of the body bears on the ankle-joint; in other words, these muscles on the front of the leg prevent "spasmodic" extension of the ankle-joint in ordinary walking. The action of this muscle, too, in helping to maintain the erect posture of the body becomes apparent; and this action goes very far to explain, if it does not make perfectly clear, how the peroneus tertius muscle is the peculiar property of the human subject, no other mammal possessing it.

I have not yet seen an instance of the absence of this muscle, and I am unable to say what the state of matters may be in such instances; but it would be instructive to know the condition of the slip of the extensor longus digitorum to the little toe, and whether any peculiarity exhibited itself in the gait of persons in whom the peroneus tertius was absent.

## VIII.—ABORTION, WITH DELAYED EXPULSION AND FIBROID DEGENERATION OF PLACENTA.

By James Millar, M.D., C.M., Nottingham.

Mrs A. T., aged 38, has had six full-time children all alive, and has had no miscarriage till now. The time between her different confinements has varied from sixteen months to two years. Her last child was born three years and four months ago; she made a bad recovery, and was in bed fourteen weeks. She did not nurse her last baby, and does not remember how long it was after her last confinement till she was first unwell, but it was not very long. She has had metrorrhagia more or less ever since; and since then, in order to prevent another pregnancy, she has used vaginal injections of cold water regularly immediately after coitus. As she dreaded another confinement, she took particular notice of the times between her menstrual periods, but is unable to place them in their chronological order. Till four months ago the loss has been so great at times that she could not go out or move about in the house. Three or four times during the last three years she has been fourteen weeks without loss, then she would be unwell for three or four weeks at a time. The usual time without loss has been six to eight weeks; once or twice she has been unwell at the proper time, and then normally so. During this time she has worn pessaries and had other treatment. Just before these attacks of metrorrhagia began she had great distention and uneasiness in the abdomen, and, taking all things into consideration, she believed it was "the change."

About four months ago she began to lose again; for three weeks she lost a great deal as on former occasions, and then she had a pale offensive discharge for the first time, but no pain; sometimes there was a little pink colour with it. This continued till the 22nd of January of the present year, when she was seized with abdominal pain, which lasted for a few hours, and ended with the expulsion per vaginam of a pyriform fleshy-looking mass, resembling a cast of the interior of the uterus, and which turned out to be a placenta. It consisted, however, for the most part of firm fibrous tissue; the maternal surface was convex and rough, the fœtal concave and smooth; there was no trace of membrane or umbilical cord to be found, and no appearance of decomposition; it was pale and bleached looking at the apex, and at the base were signs of recent hæmorrhage; the interior consisted mostly of bands of fibrous tissue, and scattered throughout were numerous small cysts; towards the base were blood-clots undergoing degeneration. From the appearance it was evident separation had begun at the internal os and extended to the fundus, and no doubt that it took at least four months to effect complete separation. When the fœtus was expelled it has not been possible to ascertain, but probably it was sometime previous to the last four months; and that the fibroid degeneration of the placenta was not the cause of abortion, but took place during the period of incomplete separation. When conception took place it would be difficult to say, but going back as far as accurate information can be obtained,—nine weeks before the last attack of metrorrhagia she was normally unwell for about a week, which would give at the most an eight weeks' pregnancy before abortion began. She had none of the usual subjective symptoms of pregnancy she has had on former occasions, and had no more reason now than she had for the last three years to believe that she was pregnant.

But there are other points of interest in the case which might lead one to think that conception had taken place earlier. About twelve months ago she lost her voice for several weeks, and on the present occasion she had lost it for a few weeks; and for the last twelve months she has had entire absence of sexual feeling, which returned when the uterus was emptied of its abnormal contents. As she put it, "I thought I had grown old all at once." If conception took place during the last twelve months, it would tend to disprove any theory that the spermatozoa enter the uterine cavity by a peculiar mechanism of the erectile tissue in the cervix and vagina. Whether this woman was having repeated abortions during the last three years, due to some pathological condition of the uterus dating from her last confinement, or it was a single case of pregnancy occurring during the menopause, and that the advent of the menopause was the cause of the loss of sexual feeling, is not fully borne out by the subsequent history of the case; or whether this metrorrhagic condition was induced by the shock of getting out of bed and injecting into the vagina half a pint to a pint of cold water immediately after the emotional excitement and local hyperæmia of coitus, but which excitement had been absent for the last twelve months, it is another instance of the failure of vaginal injections of cold water after coitus as a prophylactic against pregnancy.

When I last saw the patient she had passed two normal periods since the completion of the abortion, and is now in the full enjoyment of her sexual feelings.

## IX.—AN EXAMINATION OF THE PHENOMENA IN CHEYNE-STOKES RESPIRATION.

By G. A. Gibson, M.D., Assistant Physician to the Royal Infirmary, and Lecturer on the Principles and Practice of Medicine at Minto House, Edinburgh.

*(Continued from vol. xxxvi. p. 922.)*

### CRITICAL.

The most satisfactory method of entering on the consideration of the conditions underlying the complex of symptoms, already discussed from the clinical point of view, is obviously to be found in a survey of the ground traversed by previous observers. In the earlier papers which have appeared in the pages of this Journal the gradual development of clinical knowledge in regard to the phenomena, and the continuous evolution of ætiological doctrines with reference to their causation, have been dealt with in simple chronological order. But to have a thorough grasp of the entire subject it will be necessary, in weighing the different views which have been advanced, to arrange them in groups. The discussion of these opinions will lead in due course to certain definite and substantive conclusions.

The earlier observers advanced no theories in explanation of the periodicity of the respiration, for although Stokes regarded this as a consequence of fatty degeneration of the heart, and Schweig associated it with stenosis of the jugular foramen, causing pressure on the vagus, neither observer offered any opinion in regard to the possible means by which such lesions might produce the symptom.

Somewhat analogous in vagueness is the opinion of Broadbent. In a work which made its appearance after the publication of the earlier portions of this paper, and which will be more fully referred to in the sequel, he refers Cheyne-Stokes breathing to high arterial tension, and cites some cases of this kind in which its presence was determined by the supervention of some complication. From the consideration of these observations he is led to conclusions adverse to any hypothesis with regard to the respiratory centre, whether of exalted or diminished sensibility, and he is of opinion that they point to a loss of the normal adjustment between the systemic and pulmonary circulations. He gives no explanation of the mode of operation of the loss of balance.

It seems a sufficient answer to these views to recall the fact that periodic breathing occurs under very varied conditions. It is undoubtedly true that Cheyne-Stokes breathing is more commonly found in cases presenting high arterial tension than in patients who have a low arterial pressure; but it is necessary to take into account cases belonging to the latter class, and no hypothesis can be accepted as even plausible if it fails to do this.

Broadbent's views, moreover, make no attempt to explain why the high arterial tension, whether with or without a disturbance of the normal adjustment between the systemic and pulmonary circulations, should induce such a striking change in the rhythm of the respiration, and they do not take into consideration the various associated symptoms occurring with the periodic breathing. For these reasons, as well as on account of the fact that Cheyne-Stokes respiration often occurs without high arterial tension, his views cannot be entertained.

The earnest attempts to explain the occurrence of the periodic phases of the breathing will now be considered according to the classes into which they naturally fall.

There are, firstly, certain vague and indefinite views based upon the hypothesis of a persistent diminution of the functional activity of the respiratory nervous mechanism.

Walshe mentions "anæsthesia of the vagus or of the medulla oblongata itself," a hypothesis which appears to be simply repeated in a transposed form by Laycock with his "sentient palsy of the respiratory centre," or "paresis of reflex sensibility of the mucous membrane of the lung." The conceptions of many other writers, such as Sansom, are equally hazy.

No hypothesis of this kind is adequate. Simple reduction of the excitability of the respiratory centre might cause infrequent and irregular respiration, but it most assuredly could not by any possibility lead to the regular periodicity of phenomena seen in Cheyne-Stokes respiration.

In the second place, many attempts have been made to explain the regular periodicity of the breathing by varying conditions of the stimuli which act upon the nervous mechanism controlling the muscular functions of the respiratory apparatus.

Undoubtedly the earliest attempt of this kind is that of Little.

He thinks that the cause is a loss of balance between the two sides of the heart, either when there is diminished force of the left ventricle, as in fatty degeneration, or when some abnormal burden has been imposed on the left ventricle, under which it is unable to get rid of blood as quickly as it is supplied to it, and the blood accumulates in the left auricle and the pulmonary veins and capillaries. Being fully arterialized, this blood fails to excite the terminal filaments of the vagus, as venous blood does, and the respiration ceases. A few pulsations then displace this blood, and the venous blood streaming in excites the respiration anew.

This explanation forms in some respects a transition towards the renowned hypothesis of Traube. It postulates an intermittent stimulation of the vagus-endings by alternating conditions of the blood contained in the lungs. It cannot be regarded as meeting the case, for many diseases produce Cheyne-Stokes breathing in which no disturbance of the circulation occurs. It fails, moreover, in not giving any adequate reason for the ascending and descending phases of the breathing; and the assumed loss of equilibrium between the two sides of the heart is absolutely unproved.

Traube begins his explanation, as we have already seen, by pointing out that all cases presenting Cheyne-Stokes breathing have one common feature—a lessened supply of arterial blood to the medulla, in which the respiratory centre is situated. There is in consequence less oxygen, which influences the irritability of the nervous elements. Through this lessened amount of oxygen the irritability of the nerve cells becomes lowered, and a larger quantity of carbonic acid is required to cause an inspiration; the time, therefore, within which the carbonic acid will accumulate in sufficient quantity is lengthened. This is similar to the effects of section of the vagi, in which long pauses, attended by dyspnœa, occur in the respiration. The respiration may be excited in two ways: 1. By the pulmonary fibres of the vagus; and 2. By the afferent nerves coming from all parts of the body. The difference between these two is this, that the pulmonary endings of the vagi are bathed in blood containing much carbonic acid, while the others have a supply of blood which contains but little. If both be equally irritable, then in health only the pulmonic vagi will be called into action. If the vagi be cut, the respiratory centre can only be excited by the other nerves, and this can only happen when the blood circulating throughout the body is as rich in carbonic acid as that normally passing into the lungs. The number of the vagus fibres is incomparably smaller than that of the other nerves; when these latter act, therefore, the effect is correspondingly greater. Applying this reasoning to the phenomenon in question, the lessened irritability of the respiratory centre, caused by cerebral pressure, or uræmic blood, or deficient arterial supply, requires a larger amount of carbonic acid as a stimulus, and thus there is a long pause. When this gas has accumulated in sufficient quantity it first stimulates the pulmonary terminations of the vagi, but, as was shown long before by Traube, the strongest stimuli applied to the vagi never cause dyspnœa, and this only causes the shallow breathing which appears first after the pause. The amount of carbonic acid meantime increases sufficiently to cause stimulation of the nerves coming from the skin and other parts of the body, and hence the dyspnœa sets in. The quantity of the gas is greatly diminished by the forcible breathing, and the excitement of the other nerves ceases, so with the action of the vagi alone shallow breathing again occurs, until there is not enough carbonic acid gas to excite the pulmonary endings of the vagi, and a pause sets in anew.

This beautiful and ingenious explanation appears at first sight to fulfil all the requirements of a good working hypothesis. It is only on close inspection that it is found wanting. The initial difficulty is that a simple and constant reduction of the functional activity of the respiratory centre could not by any possibility induce a change from regular rhythm to periodic rhythm of the respiratory movements, and that no real cause for the fluctuations in the blood supply is advanced. Under the trenchant criticism of Filehne, indeed, the author found himself obliged to shift his ground, and in restating his theory, as we have previously seen, he fell back upon a tendency to rhythmic periodicity in the respiratory centre, as well as upon exhaustion of that centre produced during the phase of breathing, and causing the subsequent pause. Even this addition, however, leaves the ascending or crescendo phase quite unaccounted for, and gives no valid cause for the beginning of the periodicity.

It is hardly necessary to refer to the fact that Traube only deals with the respiratory phenomenon, and leaves untouched the different associated symptoms brought before the scientific world by the clinical acumen of Leube. And it is equally needless to add that no theory can be complete that does not account for the occurrence of the entire complex of symptoms which may be present.

Hayden, reasoning from the fact that the only lesion with which rhythmical irregularity of the breathing has been, in his experience, found, is degeneration and dilatation of the aortic arch, involving a loss of elasticity in its walls, considers that during the period of greatest quiet of the heart's action, such as occurs in repose or sleep, the systemic capillary circulation fails, from want of the aid rendered in health by the elastic reaction of the aorta; and there are a suspension of tissue-respiration, *besoin de respirer*, and accelerated or suspirious breathing. Increased respiration will aid capillary circulation, first, through the lungs, and then through the tissues of the body generally, by quickening the action of the heart and increasing its force. As the systemic capillary circulation is stimulated, the *besoin de respirer* is less urgent, and respiration gradually subsides, till a period of apnœa arrives. The descent of respiration below the normal standard arises, he thinks, from its previous excessive activity and the exhaustion of the patient. A period of feeble action of the heart succeeds, with failure of capillary circulation, and paroxysmal breathing. That imperfect circulation of arterial blood in the respiratory centre contributes in a special manner, and in a great degree, to the production of the respiratory derangement he has no doubt; but he thinks that the effect of this is not easily distinguished from that of a want of oxygen in the tissues of the body generally.

In this explanation the train of reasoning bears considerable resemblance to the arguments advanced by Traube in his second hypothesis. All the objections which have been, or may be, urged against the views of Traube may be, with equal cogency, brought forward in opposition to the views of Hayden; and it is hardly necessary to add that in a considerable number of cases, exhibiting the Cheyne-Stokes phenomenon, there is no structural alteration of the aortic walls, or of any part of the circulatory apparatus.

Hein, starting from the consideration that the fluctuating conditions of the cerebral and respiratory functions must have the same cause, considers that the irritability of the tissues in general, as well as of the medulla in particular, must be lessened by some underlying condition, which in his own experience was cyanosis. From the diminished excitability of the medulla pauses are produced which may, he thinks, have an effect on the circulation, so that what was a consequence may in other circumstances be a cause. With a normal circulation such an effect is impossible, as Cheyne-Stokes respiration may be imitated by the hour without any noticeable modification of the circulation. It is otherwise, however, when the blood-stream is slowed and oxygenation lessened, for if interruptions to the respiration take place, the functions are alternately increased and diminished, and such effects are shown in the medulla oblongata through variations in its irritability. The blood which has been arterialized during the respiratory period reaches the capillaries in greatest part at the beginning of the pause, at which time the circulation which had been quickened by the breathing becomes slower, while the tissue change is most active. The result is that the irritability of the medulla is again increased and the breathing begins. By means of the passage, during the breathing period, of the blood which has become venous during the pause, the tissue change necessary to the functional activity of the organ cannot be kept up, the oxygen in the tissues is consumed without adequate compensation, and the irritability of the respiratory centre is suspended. It is again restored after arterialized blood has coursed through the vessels of the medulla and promoted internal respiration, as occurs at the end of the pause. That the irritability shows a stage of increase and a stage of decrease is due to the fact that the alternation in the conditions of the circulation and diffusion is gradual, not sudden. From the analogous conditions of the brain and medulla it is to be concluded that the respiratory nerve centre does not simply undergo a change in the degree of stimulation, but a periodic alteration of its own condition.

The explanation advanced by this author, so far as it is possible to understand his meaning, seems to rest upon the conception that alterations in the metabolic processes lead to an alternate increase and decrease of the functional activity of the centre for respiration. But in this theory there is absolutely no attempt to find a real cause for the initial phenomena of periodic alternations—in short, as was remarked by Filehne, it is solely concerned with the *how*, and leaves the *why* untouched.

At the conclusion of his argument, however, it must be noted, he makes mention of a periodic variation of the condition of the respiratory centre; and, in his later contribution to the subject, he lays still more stress upon the periodic variations in the activity of the respiratory centre, with or without analogous fluctuations in the activity of other nerve-centres. He leaves us, notwithstanding, under the belief that this periodic variation of functional activity is produced by variations in the condition of the blood-supply, and offers no explanation of the original cause of this.

Filehne allows that for the production of Cheyne-Stokes respiration there must be a lowering of the irritability of the respiratory centre, but he asserts that the irritability of this centre must be diminished to a greater degree than that of the vaso-motor centre. He holds that these centres remain at rest as long as they have a sufficient amount of oxygenated blood, and that they are excited whenever the blood-supply is sufficiently arterialized, or when, although sufficiently arterialized, the supply is deficient in quantity. He asserts that in health venous blood excites in regular order,—1st, the respiratory; 2nd, the vaso-motor; and 3rd, the convulsive centres. When the phenomenon is present, the blood during the pause gradually becomes more venous and develops the stimulus for the centres, but, from the lessened irritability of the respiratory centre, no respiration is caused, and the pause therefore continues until the point is reached when the vaso-motor centre is brought into action. This produces a diminution of the blood-supply, which causes the respiratory centre to act and originate the superficial breathing which is first observed. Some time, however, elapses before the blood arterialized by these respirations can reach the vaso-motor centre, and this is delayed by the contraction of the arterioles caused by its activity; it also takes time before the vaso-motor apparatus can induce contraction of the arterioles, and time also before the contraction can pass away; there is therefore a lengthening of the pause and deepening of the dyspnœa.

Filehne states that when Cheyne-Stokes respiration is produced in animals by the administration of large doses of morphine, followed by the inhalation of ether or chloroform, there is a diminution of the pulse-rate during the pause, which sometimes goes the length of complete cessation of the pulsation; while during the period of respiration there is a gradual acceleration until the normal rate is regained towards the end of this phase. In animals thus experimented on the blood-pressure rises during the pause and falls during the period of breathing. In a man dying from a lethal dose of morphine and chloroform, who showed during the narcosis Cheyne-Stokes respiration, the pulse underwent the same changes as in the animals on which he performed his experiments.

During his controversy with Traube, Filehne refers, as previously mentioned, to the fact, observed by him, that the arterial tension rises before the beginning of the phase of respiratory activity; to the depression of the fontanelles in children, who present the symptom, before the active phase of breathing; to the disappearance of Cheyne-Stokes breathing on the administration of amyl nitrite; to a rise of tension in some persons before inspiration; and to the production of periodic breathing by alternate compression and relaxation of the carotid and vertebral arteries in the rabbit. In later contributions Filehne found himself driven to admit that the arterial changes may be synchronous with the periodic changes in the respiratory activity.

This exceedingly complicated hypothesis rests, in the first place, on certain assumptions which have not been proved; and, in the second place, on several observations which have, without exception, been proved to be, to say the least of them, inconstant.

The statements in regard to the relative excitability of the centres in the medulla rest upon no basis of fact, and with reference to an arterial spasm, upon a misconception.

Filehne's observations on the alterations of pulse-rate and tension have been found by numerous writers to be altogether incorrect, inasmuch as the changes, when present at all, have been seen to be the converse of what he described, and to occur at a period entirely different from that stated by him. An arterial spasm, moreover, in a patient with a condition of lessened cerebral activity would probably lead to consequences quite the opposite of those seen at the beginning of the phase of breathing. His description of the cerebral movements seen in the fontanelles of an infant is absolutely controverted by the observations made on similar cases by Rosenbach and Hein. Even the result of amyl nitrite has been found by later observers to be in many cases negative, and if any change has been produced by this drug it has been through its effects as a stimulant, as has been pointed out by Mayer and myself. The results of his experiments will be discussed at a later stage. Meantime it is only necessary to state that no basis for his elaborate hypothesis is left.

The views of Bramwell are essentially those of Filehne, inasmuch as he postulates an arterial spasm, produced by the venous blood, as the proximate cause of the excessive respiratory action, and this excessive action as the cause of the subsequent pause, through free oxygenation of the blood. The main points in which he differs from Filehne are in his considering the possibility of a different state of excitability in the discharging and restraining portions of the inspiratory centre, and in his holding that there is a state of irritable weakness in the centre, rendering it more easily fatigued, and yet also producing more powerful effects when sufficiently stimulated.

It is obvious that all the objections which have been advanced against the theory of Filehne may be brought forward in opposition to this hypothesis, and neither of them does account for the starting-point of the periodic breathing.

Cuffer, as we previously saw, seems to have proved by his researches with François-Franck that excessive oxygenation of the blood produces arrest of respiration. He has been led to consider the stage of apnœa as arising from excessive oxygenation of the blood, caused by dyspnœa; the recommencement of the breathing and subsequent dyspnœa as caused by the want of oxygenation due to the arrest of respiration; the superoxygenation of the blood and accompanying muscular fatigue determining in turn a new period of apnœa. He thinks the phases are caused by the action of the blood on the medulla as well as by the influence of a reflex action having its point of departure in the lung; the lung being the special regulator of the quantity of oxygen needed, and having its essential stimulus in the condition of the blood which it contains. He directs attention to the arterial spasm at the beginning of the respiratory period, which is characteristic of uræmia, and holds that it influences the condition of the breathing.

There seems but little difference between this view and that of Filehne, and the same arguments may be brought against both.

The theory of Grasset, as stated by Blaise and Brousse, holds that from deficient nutrition there is loss of vitality of the nerve-cells producing a condition of irritable weakness, upon which the venous blood acts strongly, producing dyspnœa. This oxygenates the blood to a high degree, which removes the stimulus to respiration, and a pause ensues, allowing the blood again to become venous. So far the theory is similar to that of Traube, *except* that its author thinks the deficient nutrition of the nervous elements produces an excessive irritability, whereas that of Traube refers the condition to a lessened irritability. But Grasset goes on to state that excitement of the vaso-motor centre may produce an arterial spasm. Here we have the theory of Filehne almost in its entirety.

On similar lines, but considerably less definite than most of the hypotheses summed up in the preceding pages, are several opinions stated by different observers.

The view of Piaggio, for instance, fully stated in the earlier part of this paper, is that there is a tissue-centre of respiration controlling an automatic centre, and that the condition of the tissues, not the state of the blood, is the determining cause of the periodicity.

Kaufmann is even less precise, and thinks that theories based upon a conception of exhaustion of the centre require the further hypothesis that the increase of irritability induced by external stimuli is so great as to prevent the exhaustion from giving expression to itself.

Wellenbergh points out that, under ordinary conditions, there is a provision for an increase or a decrease in the quantity of blood in the cranium up to a certain point, but that, when the limit is passed, changes in the blood-supply must cause disturbances. Reasoning from the analogy of the mechanical contrivance described previously in the extract from his paper, he seeks for some mechanical cause of interference with the blood-supply, and is of opinion that this is to be found in œdema of the brain, and he advances the hypothesis that the periodic breathing is the result of a struggle between the pressure of the œdema outside the blood-vessels and the blood-pressure within them, in which struggle each is alternately supreme.

It is a sufficient reply to this hypothesis to point out that many cases have no œdematous condition, and that the explanation is therefore not valid.

Many observers simply give in their adhesion to one or other of the foregoing hypotheses based upon assumed alterations of the external stimulation, and it is therefore unnecessary to refer to them in this place.

(*To be continued.*)

# Part Second.

## REVIEWS.

*Stammering; its Nature and Treatment.* By EMIL BEHNKE, Lecturer on Vocal Physiology; author of the "Mechanism of the Human Voice," etc., etc. London: T. Fisher Unwin: 1891.

*Ueber Das Stottern.* Von Dr J. G. SSISKORSKI, Professor an der Wladimir-Universität in Kijew. Ins Deutsche übertragen unter der Redaction von Dr J. HINTZE. Berlin: Verlag von August Hirschwald: 1891.

THE appearance of these books on Stammering is of special interest at present, coming, as they do, so soon after the publication of the first part of Dr John Wyllie's "Disorders of Speech" in this Journal, and in noticing them we think it would be profitable to compare them, in parts at any rate, with Dr Wyllie's paper. To begin with the first, Mr Behnke has evidently studied the physiology of the subject to some purpose, and he claims to effect cures rapidly by means of a phonation drill. This drill is chiefly directed to the greater use of the diaphragm in speaking,—for instance, the author describes the first part of the performance as follows:—"As soon as he has acquired sufficient control over the diaphragm, I direct him once more to say the alphabet, taking a very short inspiration before each letter by *contracting* the diaphragm, and then attacking the letter by *relaxing* the diaphragm. I control these movements by holding my hand on his abdomen, and he now, to the amazement of his friends . . . pronounces every letter quietly." If these manœuvres fail to relieve the patient wholly or in part, drill of the glottis by a repetition of *staccato* notes, each preceded by a short inspiration, is recommended in cases in which the mechanism of the larynx is chiefly at fault, while a similar soft palate drill and a species of intoning complete the series.

The author has grasped the idea of the need of harmonious action between the different parts of the voice mechanism, but he might have insisted far more on the various "stop-positions" and on the physiological alphabet than he has done. The general tone, however, of the book is excellent, and the need of medical aid in tracing out the causes of the stammer in many cases is strongly insisted on. Mr Behnke fulfils Dr Wyllie's postulate concerning the specialist who works on scientific principles and is worthy of every support.

Dr Ssiskorski's book is a much more pretentious volume, which has been well translated by Dr Hintze, but the proof reading might have been more careful, for there are numerous mistakes in spelling. The author has had a large experience of this malady, and takes its consideration up in the most thorough and complete style. A history of stammering commences the volume, and beginning with Herodotus and Hippocrates, passes in review every statement almost that has been made about it.

Chapter 2 is devoted to the symptomatology, which is rather fuller than in Dr Wyllie's paper. Beginning with spasm on the part of the respiratory mechanism, the author names three subdivisions,—1. Inspiratory; 2. Expiratory; 3. Rhythmical respiratory spasm.

The *Inspiratory spasm* is the same as Wyllie's Drawback Phonation, and is referred by Ssiskorski to the diaphragm, for, as he points out, the same phenomenon is seen on electricisation of the phrenic nerves. He denies that it is due to want of air in the lungs, for by systematic mensuration of stammerers he has found no diminution of volume. He points out, also, that all vowels uttered during the drawback are aspirated, due to shortening of the cords and loss of tension from consequent loss of power in the thyro-arytenoidei muscles, and that *a* is lowered in pitch, *i* heightened. He gives two illustrative cases.

The *Rhythmical respiratory spasm* is due to alternate inspiration and expiration while trying to pronounce a word, as in one very interesting case recorded, in which the patient, on trying to say Aufbewahrung, said, Aufbe | — | — | — wahrung—the upright strokes representing inspiration, the horizontal expiration.

Passing on to affections of the phonation mechanism, again we find three divisions,—1. Closing spasm of the glottis, the gutturo-tetanic spasm of Colombat, corresponding to Wyllie's fourth stop-position. It is simply want of co-ordination between the abdominal and the laryngeal muscles. In an illustrative case the patient had more difficulty in letting out the imprisoned air when ā was sounded than with the other vowels. 2. Vocal spasm; and 3. Tremulous spasm of the larynx, *Vox tremula*, generally a prolonged repetition of *e* mute.

The third division comprises the affections of the articulatory mechanism, and four stop-positions are enumerated,—1. At the lips; 2. Tongue against palate and upper teeth; 3. Base of tongue against soft palate; 4. The soft palate and throat, or nose and throat position,—at all of which stammering can occur. The first three positions are similar to Dr Wyllie's, but number four is added to his list. The labio-dentals are merged into the labials, while the linguo-dentals are omitted, as will be seen from the following table modified from Grot.

| Classification of Sounds. | With Sound. | | | | | | | Sounding of itself. | |
|---|---|---|---|---|---|---|---|---|---|
| | Momentary. | | Continuous. | | | | | Full Tone. | Half-Tone. |
| | | | Flowing | | | Nasal. | Vibrating. | | |
| | | | Through one Channel. | | Through two Channels, one on each side. | | | | |
| | Whisper. | Phonating | Whisper. | Phonating. | | | | | |
| 1. Gutturals, | k | g | ch | h | | | | a | |
| 2. Palatals, | | | sch | sh (French j) | | | | i | j |
| 3. Dentals, | t | d | s | z | l | n | | | |
| 4. Labials, | p | b | f | w (v) | | m | | u | |
| 5. Linguals, | | | | | | | r | | |

The author now takes up the spasms of the different parts of the articulatory mechanism *seriatim*, dividing, for instance, the defects in the movements of the tongue into those of the tip, of the body, and of the whole tongue. Spasmodic protrusion of the tongue, noted by Dr Wyllie, is also referred to, and divided into tonic and clonic forms.

The next section treats of the spasm of articulatory expiration, and records a most interesting case in which whole syllables were repeated, as:

Poto—poto—poto—poto—poto—potopili.
Du—du—du—du—duscha.

There are some statistics in the fourth chapter which are of interest; for instance, out of 22,787 school children, 1·573 per cent. stuttered, and 51 per cent. of these began to do so between the third and fourth year, the rest in a decreasing ratio up to seventeen years of age. One would, *à priori*, have supposed that Russian children, speaking a language of which it has been said that "it contains sounds, some softer than the softest Italian, and some the most guttural," would have stammered more than the French, for instance, with their usual flow of language; but our author gives the French percentage of stammerers as 6·69 to 7·19 per cent., the Russian only as 1·06 to 1·58 per cent.; while with regard to the cause he finds that fright gives rise to it in 67 to 71 per cent. of all the cases which he has seen, imitation to 16·67 per cent.

The treatment suggested begins with absolute silence for seven to ten days, then from the practice of simple breathing proceeds to *fractionirtes athmen*, in which the inspiration and expiration are of stated and always changing periods—in fact, simulating the breathing which requires to be used during speech, but without producing the voice. Then this breathing is combined with the sounding of the different vowels at the same time, and gradually the use of the different consonants is added. When the patient has mastered his impediment so far, he is put though a further course of word gymnastics (*wort gymnastik*); first he repeats spoken sentences, reads, and then pronounces the words inwardly, recites, whispers, declaims, improvises, and converses.

Perhaps, on the whole, Dr Ssiskorski does not pay sufficient attention to the establishing in the patient's mind the difference between voiced and mute letters; and it is doubtful if every case should be treated by one stereotyped method, however full, but rather each case should be treated scientifically on its own merits or defects.

The amount of labour expended on the book must have been enormous; but it certainly would have been more readable and useful if the author had seen his way to have compressed his observations into smaller bulk.

There is a note with regard to stammering in deaf-mutes we should like to make here. We have never seen one taught by the oral method who really stammered; the nearest approach to it being in a boy who lost his hearing when four years old, and who had stammered a little previously. His sole impediment now is a slight hesitation when speaking; and, indeed, the drill deaf-mutes are subjected to is just the correct treatment for this malady. Deaf-mutes in speaking—and we have examined many—use the tongue so much as a whole, that the sounds, produced at the stop-positions at which it acts, have a want of crispness.

*The Practice of Medicine.* By M. CHARTERIS, M.D., Professor of Therapeutics and Materia Medica, Glasgow University; formerly Physician and Lecturer in Clinical Medicine, Glasgow Royal Infirmary. Sixth Edition. Student's Guide Series. London: J. & A. Churchill: 1891.

IN this edition the sections on Electricity and Diseases of the Liver, Kidneys, and Skin have been re-written, and especial prominence has been given to the mode of writing prescriptions. Many parts of the book are up to date, and contain all that a student of Medicine should require, while other parts of the book are unaccountably deficient. In the very short *résumé* of Bacteriology, Fränkel's pneumonia bacillus is missed out. The points given on which the author asks us to pronounce a case to be cancer of the stomach are the occurrence of pain after food, vomiting, great emaciation, and of a tumour in the epigastrium. Cancer at the cardiac end is to be distinguished also by the early time the pain comes on after food. No note is made of the probable occurrence of melœna, of the want of free hydrochloric acid, of the increased urea and pigments in the urine, or of the tenderness in the epigastrium when the tumour is too small or too deep to be accurately distinguished by the sense of touch. We think, too, that the author should have separated ulcers of the stomach into the acute and, most troublesome to diagnose and treat, the chronic forms. It is rather unfortunate, also, that the list of unclassified diseases should be so long; surely anæmia, chlorosis, hæmophilia, and rickets might be classed with the circulatory system as diseases of the blood, and cretinism and myxœdema might well enough be entered under the section devoted to the thyroid gland.

Figure 15 is very misleading; it purports to be the areas of cardiac hepatic and splenic dulness, but only the absolute dulness of the liver is given, and what appears to be a slightly enlarged absolute dulness of the heart; what is far more important for diagnosis, the relative dulness of these organs, is not shown. Surely, again, it is a very bad thing for a student to get into his brain that all epilepsy is purely functional. Do fits never occur from the irritation of depressed pieces of bone, and is there no such thing as a "Jacksonian" attack? When the seventh edition is published, perhaps those parts of the book will be re-written and its value enhanced.

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*De l'Acromégalie, Maladie de P. Marie.* Par SOUZA-LEITE, J. W. Paris: Lecrosnier et Babé: 1890.

IN this book Dr Souza-Leite has very ably put together all that has been written on acromegaly since the original description of the disease was published by Marie in 1886. The subject matter of the volume is arranged in two portions, the first of which treats of the etiology, symptoms, and treatment of acromegaly, while the second or larger portion is a complete report of the 38 cases published previous to 1890. The additional reports of no less than six post-mortem examinations are of especial value, in view of the fact that the pathology of the disease, as described by Marie in his original paper, appears to have been founded upon what he observed in a single sectio. The most constant lesion found after death is the increase in size of the pituitary body; this is stated by the author to have been present in every recorded case (?); the size of the body varies from that of a pigeon's to that of a hen's egg, and the nature of the enlargement has been shown by microscopical examination to be hyperplastic and not neoplastic. Other fundamental lesions consist in a hypertrophy of the sympathetic system and a persistence of the thymus.

The diagnosis of acromegaly is considered in a separate chapter. The author has been at considerable pains to furnish the fullest possible data, by means of which it is to be differentiated from a number of pathological conditions, which in skilled hands would be little likely to be mistaken for it, viz., osteitis deformans (which until quite recently was scarcely known in France), myxœdema, elephantiasis, giant growth, etc.

There is, however, a disease, which, because like acromegaly it has only been recently identified and named, is very apt to be confused with the latter, and cases of which have been recorded as acromegalic by very distinguished observers, an instance in point being the well-known case of the brothers Hagner, successively recorded by Friedreich and Erb. The disease referred to is that recently described by Maire, and named by him hypertrophic pneumonic osteo-arthropathy [l'ostéo-arthropathie hypertrophiante pneumonique.[1]] As far as we have been able to ascertain, it was simultaneously and independently identified by Dr E. Bamberger, clinical assistant to Prof. Nothnagel in Vienna.[2] The condition in question is observed in patients the subject of chronic lung disease, *e.g.*, bronchiectasis, empyema. The hands, feet, and distal portion of the forearms and legs become greatly increased in size, as the result of a chronic overgrowth which is practically confined to the bones of these parts—the process being regarded as a chronic ossifying periostitis. The hands and feet become enormous, the fingers longer and thicker, more especially the terminal phalanges, so that the digits come to resemble drumsticks or bell-clappers. (What we are familiar with as "clubbed fingers" represents a minor degree of this.) The nails are remarkably widened, increased in length, and curved. The long bones of the limbs, especially the lower end of the radius and ulna, and tibia and fibula, are greatly thickened by a periosteal overgrowth. Both Marie and Bamberger attribute the changes in the bones of the extremities to absorption into the blood of certain substances from the diseased lungs.

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[1] "De l'Acromégalie, leçon clinique," *Bulletin Médical*, Décembre 1889.

[2] *Zeitschrift für Klin. Med.*, Bd. xviii., Heft. 3 and 4.

According to Marie, we are to distinguish this pneumonic osteo-arthropathy from acromegaly by the fact that in the former the changes are specially confined to the bones, while in the latter the soft parts participate to at any rate an equal extent. Again there is wanting in the former those changes in the axial portions of the skeleton which are so characteristic of acromegaly, *e.g.*, the elongation and prognathism of the face, which result from overgrowth of certain of the bones of the head, the hypertrophy of the clavicle, sternum, vertebræ, pelvis, etc. Dr Souza-Leite also furnishes data for distinguishing acromegaly from another and equally little known condition, viz., vaso-motor paralysis of the extremities ("l'érythro mélalgie").

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*Modern Materia Medica for Pharmacists, Medical Men, and Students.* By H. HELBING, F.C.S. Second Edition enlarged. London: Offices of the British and Colonial Druggists: 1891.

THIS work contains much valuable information, and will be of great service to pharmacists. It is not a book likely to become popular with medical men, and certainly not with students. Nevertheless it contains much valuable scientific information.

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*Du Chimisme Stomacal (Digestion normale—Dyspepsie).* Par GEORGES HAYEM, Professeur de Thérapeutique à la Faculté de Médecine de Paris, et J. WINTER, Préparateur du Laboratoire de Thérapeutique à la Faculté de Médecine de Paris. Paris: G. Masson, Éditeur: 1891.

THIS book marks a distinct advance in our knowledge of the chemistry of digestion, and is in direct continuation of the work done on the subject by Ch. Richet, Mathieu, and Bourget. The first half is devoted to the study of normal digestion, commencing with a very careful history of the subject, and proceeding to the authors own method of testing the contents of the stomach. They estimate the chlorine, free as HCl, fixed or combined with proteids, by a complicated process, the presence or absence of free organic acids by the ordinary methods, and tabulate the results by certain symbols. Theoretically the total acidity per cent., minus the free HCl, should equal the chlorine combined with proteids, or, as Hayem and Winter put it, $a = \frac{A-H}{C} = 1$. The variations in the total acidity and in the above proportion serve as the types of dyspepsia. If the acidity be high it is termed "hyperpepsie," if low, "hypopepsie," while the variations of $a$ give an indication of the amount of the organic acids, and thereby of the fermentations present. One fact which they have brought out more clearly than any previous workers, is the small proportion of free HCl ever present in the contents of the stomach, seldom above ·05 per cent. The amounts normally present, as given by them, are as follows:—Total acidity, ·189, $\alpha$ ·86; total chlorides, ·321; fixed chlorides, ·109; free hydrochloric acid, ·044; hydrochloric acid combined with proteids, about ·168.

Another point to which the authors draw attention is the large amount of fixed chlorides in the gastric juice. They gave dogs distilled water to drink and syphoned it off fifteen, thirty, and sixty minutes after. In this fluid they found free hydrochloric acid, some organically combined acid, and a considerable quantity of fixed chlorides. How much of that is derived from the saliva does not appear. The great fault to be found with nearly all the analyses of digesting food, as in most works on the subject, is occasioned by the failure of the experimenters to note the time after the food was taken. The authors fail also to indicate, with a few exceptions, the digestive power of the stomach contents, mentioning merely whether the tests for peptones were marked or not—a very illusory performance.

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*The Neuroses of Development, being the Morison Lectures for* 1890. By T. S. Clouston, M.D., etc. Edinburgh: Oliver & Boyd: 1891.

It is scarcely needful to recall Dr Clouston's Morison Lectures in the pages of the Journal in which they have so recently appeared. Nevertheless many of our readers will be pleased to know that they have now been published in a separate form. As usual, Dr Clouston was happy in the choice of his subject. The Lectures were numerously attended, and listened to with interest. He dealt with those diseases of the nervous system which occur solely, or most frequently, during the period of growth. Though much has already been written on these subjects, it was impossible for a man of Dr Clouston's originality and power of intellect to go over the ground without indicating something new.

The V or saddle-shaped palate has already been carefully studied in idiots; but Dr Clouston gave increased importance to the subject, by making fresh researches to ascertain the relative frequency of this abnormality in lunatics, criminals, and other members of the great family of the degenerated. It would be well still to carry on such inquiries amongst criminals, for those examined by Dr Clouston in the Edinburgh jail were generally under short sentences. Those under long sentences, who are likely to include more of the delinquent class, are sent to Perth. Dr Clouston finds an abnormal form of the palate to be much more common with criminals, lunatics, and epileptics, than with ordinary people. Other observers have noted it to be frequent in those born deaf. He has proposed a classification of the different forms of abnormal palate, accompanied with engravings, which is likely enough to be accepted. It is to be regretted that in his observations on abnormal palates, Dr Clouston paid comparatively little attention to the form, structure, and arrangement of the teeth, which are often irregular and peculiar in genetous idiocy. Dr Clouston's explanation that the narrowness of the palate is dependent upon a small development of the frontal lobe does not seem consonant with facts. Sometimes the palate is very high where the frontal lobe is large. Dr Clouston says, the palate is generally highest in the microcephalic and Mongolian class of idiots, where the brain has shown most developmental lessening. We have not particularly noticed this distinction in Mongolian idiots, and in microcephales the palate is not infrequently flat, as may be seen from the lithographs in Vogt's *Memoir*. Dr Clouston points out with great sagacity the difference in the functional power of the nervous system at different ages, both in its capacity for resisting specific diseases and for evolving different kinds of energy.

It is impossible to read these pages condensing the results of a rich experience without learning much. Nevertheless one cannot help feeling that many of these things could appear otherwise from a different standpoint. We think Dr Clouston is too little inclined to look upon the organism as a whole, and too much inclined to rest his attention upon the nervous system, and especially upon the brain. He talks of the trophic energies of the brain in cases of vicious heredity not being able to complete the organism. Would it not be more correct to say, that the trophic energies of the organism, were not able to complete the brain. In accordance with arbitrary fashion the prime function of the brain is assigned to the nerve cell; and we hear little about the action of the blood in the cerebral tissue. But without a brisk circulation of arterial blood in the encephalon, thought and feeling would cease. The cerebral circulation does a great deal more than repair waste.

Dr Clouston has endeavoured to draw attention to what he calls "the insanity of adolescence," mental derangement at the end of the periods of growth after the complete evolution of the function of reproduction. This, our author observes, often culminates in the supervention of dementia of a hopeless character. This may be held to be analogous to the death of a plant immediately after flowering, or to the rapid decay which sometimes occurs in fruits just as they reach complete ripeness. The instructive nature of Dr Clouston's generalizations is much increased by the clinical cases which he traces in such a graphic manner. The classification of insanity used by Dr Clouston has been several times attacked; but such is the force with which he presents his views that his types have come to appear as realities in the minds of the large number of medical men, who look to him for instruction. The illustrations, some of which are admirably done, add much to the value of the work. It may be said that, on the whole, these Lectures form a volume which no student of neurology will be willing to want from his library.

*A Plea for the Scientific Study of Insanity.* By J. BATTY TUKE, M.D., etc. Edinburgh and London: Young J. Pentland: 1891.

IN this pamphlet, which was originally published in the *British Medical Journal,* Dr Tuke insists that we should have a more scientific basis for the study and treatment of insanity. He complains that the proposal to establish in London a hospital for the treatment of recent and acute cases of insanity has been kept in abeyance chiefly by the opposition raised against it by asylum superintendents. At the discussion of the subject at various meetings of the Medico-Psychological and British Medical Associations, Dr Tuke observes: "Few could help feeling deep disappointment at the almost unanimous expression of perfect satisfaction with the existing state of matters regarding the treatment of insanity. No faults, no shortcomings were admitted; administration was held to be perfect, and a higher scientific position to be unattainable. So long as the insane were well housed, well treated, well aired, and well amused, the asylum physician exhausted the chief resources of his art. Hospital treatment, as opposed to asylum treatment, was scouted, and scientific investigations were, by certain speakers, jeered at."

We have no objection to a trial of the scheme favoured by Dr Tuke, and would like to see more science and less routine in the treatment of insanity, although we cannot assign the same importance to microscopic observations as he does. It is always important to know the pathological condition in insanity, as far as our senses will allow us; but our knowledge of the histological structure of the brain does not really help us to explain its function in the same way as a knowledge of the structure of the lungs or kidneys do to elucidate the functions of these organs. Dr Tuke calls attention to different symptoms, such as mania and melancholia following the same causal lesion; but if the cause be the same, how are the effects different? The fact is, in observed symptoms, sensory, motor, and mental, we have a much more delicate test of alterations in the brain than we probably would have could we ascertain the conditon of the living substance by the highest microscopic power. We are pleased to learn of the condition of the brain in insanity from Dr Bevan Lewis as well as from Dr Batty Tuke himself, but to hear an experienced psychiatrist talk lightly of the value of mental symptoms only excites our wonder. Many cases of insanity could never be diagnosed at all without the mental symptoms. In some cases they are the only symptoms visible. Could Dr Tuke adventure to diagnose even general paralysis without the mental symptoms? He holds that its symptoms are caused by a sub-inflammatory condition of the membranes and cortex, while others think that they are the result of a premature senility. Well, what difference does the one or other view make in the treatment? In fact, Dr Batty Tuke's ideas of the importance of microscopic examination partake of the extreme devotion of a specialist. He complains that amongst the questions set for the examination for a certificate in psychological medicine there are none on the anatomy or physiology of the brain. But those who choose to subject themselves to these examinations are graduates who have already been exposed to examinations on anatomy and physiology, which are generally sufficiently exacting. Examiners in medicine and surgery would wander from their province if they asked questions upon the structure and function of healthy organs.

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*Surgery.* By C. W. MANSELL MOULLIN, M.A., M.D. Oxon., F.R.C.S., Surgeon to the London Hospital. London: J. & A. Churchill: 1891.

NO one can look into this bulky volume without being impressed with the incalculable amount of labour which its production must have entailed on the author. From the point of view of the student and general practitioner, it will, in our opinion, prove more serviceable than any other text-book on Surgery of similar scope and pretensions. The arrangement of contents is good, the writing is clear and concise, the information conveyed is accurate and up to date, and the illustrations are numerous and fairly executed.

In the first issue of a book which extends to 1400 pages, there are, as one might expect, a number of defects and inaccuracies which detract from the excellence of the work as a whole; to some of these we will draw attention in this place, so that they may be rectified in a subsequent edition, should this be called for.

In the first place, we find throughout the book that the teaching of surgical practice, as based on antiseptic principles, leaves a good deal to be desired. What the author calls "Lister's method" is referred to as something special, as one which may or may not be adopted. The reader is not sufficiently impressed with the important difference between sepsis and asepsis; this is specially evident in the chapter which deals with the results of excision of joints, and at different parts of the book where the operative treatment of tubercular diseases is under discussion. For example, at page 799, the choice of locality in opening a retro-pharyngeal abscess, whether through the mouth or through the skin of the neck, is stated to be determined by the direction the abscess takes; surely, if there is any value to be attached to the attainment of cleanliness or asepsis, the opening should always be made through the skin of the neck. Again, on page 508, after giving an account of the different operative procedures which may be called for in the treatment of acute osteomyelitis, we read "that cold applications, *lead and spirit lotion*, for example, may be used at first; but, as soon as there is an escape for the pus, warmth is more serviceable, as the object then is to encourage the discharge of the poison as far as possible." Whether the domestic hot fomentation or linseed poultice is to be selected as the more suitable application to the incised bone is left to the choice of the reader.

The description of pathological processes in their bearings on Surgery is unusually good. In giving an account of the process of repair in healing wounds, however, the author is guilty of the following ambiguous sentence on page 153. In a healing sore, he writes, " the deeper layers (of vascular lymph) become gradually converted into cicatricial tissue. . . . . The superficial ones, on the other hand, are *transformed into epithelium* under the influence of the already developed cells at the margin." Is it accurate to teach that reparative cells of mesoblastic origin are capable of being converted into epithelial cells? We think not.

In the chapter on the Diseases of Bone we find that the lesion known as Brodie's abscess is described under the heading of " simple caries ;" and further, we are told that it is " sometimes caused by injury " (page 495). Such a statement is likely to confuse the student who has succeeded in mastering the earlier chapters of the book, in one of which there is a very clear account of the bacterial origin of suppuration.

Mr Moullin does not give any information of tubercle as a cause of loose bodies in joints. In the treatment of cirsoid aneurism we are scarcely prepared to accept the author's statement that excision is the only plan that deserves any reliance. The absolute safety and certainty of cure by means of electrolysis, after the method introduced and practised by John Duncan, make the latter, in our opinion, the only one justifiable.

Lastly, we read, on page 58, that hæmorrhagic infarction does not occur in the liver, whereas it is well known that it may be the sequel of embolic plugging of the smaller branches of the portal vein.

We do not mean to convey the impression that the above represent all the inaccuracies in Mr Moullin's work; but we feel confident that, when these and others have been rectified, it will be found well worthy to rank among the best text-books of Surgery in the English language.

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*A Manual of Operative Surgery.* By FREDERICK TREVES, F.R.C.S., Surgeon to, and Lecturer on Anatomy at, the London Hospital; Member of the Board of Examiners of the Royal College of Surgeons. With 422 Illustrations by C. BERJEAU, produced under the superintendence of the Author. Two Vols., containing about 800 pages each, medium 8vo. London: Cassell & Co., Limited: 1891.

THE object of this large and luxurious work is " the description of the practical aspects of treatment by operations, with the technical details of operative surgery, and with such part of the surgeon's work as comes within the limits of a handicraft." Mr Treves is full of enthusiasm for operative surgery, and has had a free hand given him by his publisher, and he has produced a most excellent book. Paper, type, illustrations, and general get-up are beyond praise, and the contents are worthy of their medium. Beginning with a chapter on general principles of the preparation of patient, operator, room, and instruments, he describes the methods of wound treatment. This is followed by a chapter on Anæsthetics, in which he expresses his preference for nitrous oxide gas for short operations, and (with some exceptions) ether for more prolonged ones. The rest of the first volume contains chapters on Ligature of Arteries, Operations on Nerves, Amputations and Operations on Bones and Joints. These are lavishly illustrated, and described with great fulness and precision.

The second volume, after a very interesting chapter on Plastic Surgery, describes the various operations on different regions of the body. In this arrangement Mr Treves has managed to avoid risks of repetition and difficulties of reference, which we sometimes notice when the arrangement is purely regional, and still worse in those attempts to systematize under various heads operations similar in character. Intestinal surgery, which has made such vast strides in the last decade, receives full attention, and thanks to abundant illustrations are rendered wonderfully clear. In fact, we are able to congratulate Mr Treves on a most admirable piece of work. Many excellent manuals of Operative Surgery are in the field already, and each must to a great extent repeat each other's authorities, and consciously or unconsciously quote from earlier works. Still Surgery progresses so fast, that each year there is room for some new writer. The large size and expense of the work makes it more suitable for the libraries of hospital surgeons and specialists than for the table of the busy practitioner; and for the student preparing for his examination, these large volumes will have an alarming tendency.

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*Clinical Lectures on Surgical Subjects, delivered at University College Hospital.* By CHRISTOPHER HEATH, Holme Professor of Clinical Surgery in University College, London. London: J. & A. Churchill: 1891.

THIS is a collection of seventeen clinical lectures which at different dates, between 1875 and 1891, have been reported in the weekly journals. They vary considerably in interest and importance, but are all characterized by the practical sense and sagacity, the fruits of long experience as a surgeon, which Mr Heath's work always exhibits.

There is nothing of the theoretical in any of them, and the bacterial origin of disease is not even alluded to. Staphylococci and bacilli are conspicuous by their absence; but as in another decade they will go the way of previous theories, Mr Heath's lectures will then not be so much out of fashion as now they will be accused of being by the modern school.

Their practical value will be unchanged, and to old pupils of University College they will prove pleasant memories of past work.

*Golden Rules of Surgical Practice, for the use of Dressers and Junior House-Surgeons.* By a HOSPITAL SURGEON. Bristol: John Wright & Co.

THIS is a pretty little book for the waistcoat pocket. It contains a great deal of excellent practical information delivered in a somewhat sententious and *ex cathedrâ* manner, so as to impress the juvenile mind, and fix it in the juvenile memory. It may be of much use to young house-surgeons.

# Part Third.

## MEETINGS OF SOCIETIES.

## MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

### SESSION LXXI.—MEETING I.

*Wednesday, 4th November* 1891.—Professor A. R. SIMPSON, *President, in the Chair.*

### I. PRESIDENT'S VALEDICTORY ADDRESS.

*The President* gave his Valedictory Address, which appeared at page 489 of this Journal.

A vote of thanks to the President, Professor Simpson, was moved by *Dr Littlejohn,* and seconded by *Professor Struthers.*

### II. ELECTION OF MEMBERS.

The following gentlemen were elected Ordinary Members of the Society :—J. J. Douglas, M.D., 24 Rutland Square ; Robert Stirling, M.B. ; J. Y. Simpson Young, M.B., C.M., 14 Ainslie Place ; John Macpherson, M.D., Stirling District Asylum.

### III. ELECTION OF OFFICE-BEARERS.

The following gentlemen were elected Office-Bearers for the ensuing session :—*President,* Mr Joseph Bell ; *Vice-Presidents,* Dr Brakenridge, Dr P. H. Maclaren, and Dr Claud Muirhead ; *Councillors,* Dr David Menzies, Dr J. H. Balfour, Dr R. M'Kenzie Johnston, Dr R. H. Blaikie, Professor Simpson, Dr J. Batty Tuke, Dr Semple, and Mr George A. Berry ; *Treasurer,* Dr Francis Troup, 1 Minto Street ; *Secretaries,* Mr F. M. Caird, 21 Rutland Street, and Dr William Russell, 46 Albany Street ; *Editor of Transactions,* Dr William Craig, 71 Bruntsfield Place.

### SESSION LXXI.—MEETING II.

*Wednesday, 2nd December* 1891.—Mr JOSEPH BELL, *President, in the Chair.*

### I. EXHIBITION OF PATIENT.

*Dr William Stewart* showed a case of successful trephining for MIDDLE MENINGEAL HÆMORRHAGE.

### II. EXHIBITION OF INSTRUMENT.

*Dr Dawson Turner* showed a simple RHEOSTAT and a new form of GALVANIC CELL.

### III. ORIGINAL COMMUNICATIONS.

1. *Dr A. E. Morison* read his paper on EXTRA-UTERINE GESTATION, which will appear in a future number of this Journal.

*Dr Berry Hart* congratulated Dr Morison on his most valuable paper. To the diagnosis and treatment no exception could be taken, although extra-uterine gestation was one of the most difficult subjects in obstetrics. Dr Morison's first case was evidently an extra-peritoneal gestation, and considering the difficulty of the operation the good result was remarkable, and spoke highly for the operator's skill and daring. He (Dr Hart) was glad Dr Morison was so sound in his treatment; there was nothing so good in selected cases as abdominal section. The paper was a most valuable practical contribution.

*Dr Haultain* begged to thank Dr Morison for his report of such an interesting series of cases. In Case 1, which showed all the signs of an extra-peritoneal hæmatocele, he would have been inclined to have let the patient alone, as in these conditions the effused blood as a rule became absorbed, and the cases tended towards spontaneous resolution and cure. If secondary suppuration did occur, the cavity could be opened, and washed out either through the abdomen or vagina, the risk of hæmorrhage being now diminished. He was surprised at the few cases in the series in which free intra-peritoneal hæmorrhage was met with, and thought Dr Morison was to be congratulated on its absence. In one case upon which he had had the pleasure of assisting Dr Halliday Croom in operating, rupture of the tube had not occurred; but from separation of the ovum from the tube-wall extensive hæmorrhage had taken place through the distal end of the tube, but fortunately in this case the tube opened freely into a separate sac in which the ovary lay flattened out. This sac formed a tumour bigger than a large orange, and was distended with dark fluid blood. It evidently was an example of that developmental condition described by Bland Sutton, in which the ovary, like the testes, has a complete peritoneal investment surrounding it, into which the Fallopian tube enters, with its fimbriæ hanging perfectly free, thus removing the possibility of an inflammatory formation. He again thanked

Dr Morison for his valuable paper, and looked forward to its more thorough study when it appeared in print.

*Dr J. W. Ballantyne* had listened with much interest to the recital of cases which Dr Morison had given. He had heard some years ago of Dr Morison's first case, and was now glad to learn that the patient had entirely recovered, a result which he thought was, under the circumstances, most satisfactory and encouraging. Such a successful termination indicated that, even in cases where the gestation was probably extra-peritoneal, laparotomy might be performed with a reasonable hope of cure. About a year ago he had seen a case in consultation which demonstrated how tedious and dangerous might be the progress of events when an ectopic extra-peritoneal pregnancy was either not operated upon or only opened per vaginam. The patient to whom he referred had for nearly a year and a half been in imminent danger, had been quite confined to bed, and had been passing fœtal debris through the vagina; she had ultimately recovered, but only after very prolonged suffering.

*Dr Morison*, in reply to Dr Hart, said he looked on Case 1 as being extra-peritoneal. That while admitting the importance of being able to demonstrate the presence of placental tissue, still he thought that even those cases where it was not found were cases of ectopic gestation. In reply to Dr Haultain, he thought Case 1 was undoubtedly the case in which operative interference was justifiable, and that he would consider it bad surgery to delay until suppuration had taken place in the sac, and then open per vaginam. The risks of prolonged suppuration and septicæmia were too great. The reason the hæmorrhage in the cases recorded (except 3) was limited was that adhesions had formed over the pelvic brim.

2. *Dr David Wallace* read his paper on the OCCURRENCE OF CERVICAL RIBS.

*Mr Caird* stated that he had seen what he believed to be two cases of cervical rib,—one in which an aneurism was simulated on the left side of the root of the neck in a woman; and a second, with which a neuritis and obliteration of the right radial pulse was associated.

3. *Dr P. M'Bride* read his paper on CYSTIC TUMOURS OF THE THROAT, NOSE, AND EARS.

*Dr R. M'Kenzie Johnston* wished to express his thanks to Dr M'Bride for his paper, which dealt with a subject of great interest. Little if any reference to these diseases would be found in any of the best text-books, and so his paper was of special interest and value. He was inclined to think, himself, that the supposed rarity, specially of cysts in the tonsils, was due to the slight amount of discomfort often produced by them, and to a tendency to spontaneous rupture and disappearance. He observed that Dr M'Bride made hardly any reference to the pathology of these growths, and he wished to know whether that was due to his not being satisfied with the theories that had been advanced. In the formation of nasal cysts M'Donald had suggested that hypertrophy was followed by fissuring, which finally caused union of the incurved surface, producing invagination of a portion of the secreting mucous membrane.

*Professor Struthers* asked Dr M'Bride whether he accepted as accurate the common statement that glands are not present in the osseous stage of the meatus.

*Dr Horsley* thought that, given the possibility of extended examination, the diagnosis between true cysts and polypi which had undergone cystic degeneration might be assured. He gave an account of a cyst occurring in the course of a case of hypertrophic rhinitis, and suggested that nasal cysts might very frequently exist in such cases without causing a disturbance in excess of that due to the general hypertophy, and consequently be overlooked. Another cause of their being overlooked might possibly be the spontaneous evacuation of the cysts.

*Dr M'Bride* begged to thank the Society for the kind way in which his paper had been received. In reply to Dr Johnston, he begged to say that he had as far as possible in his paper considered the pathology, but in some of the cases it was really impossible to give a satisfactory account of the etiology, which must be only conjectural. In reply to Professor Struthers, he believed that the observations denying glands in the anterior part of the osseous meatus was accurate, although he had not made any personal observations on the subject. In conclusion, he begged to remind Dr Horsley that it was impossible to draw a hard and fast line between cystic mucous polypi and true cysts.

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## OBSTETRICAL SOCIETY OF EDINBURGH.

### SESSION LIII.—MEETING I.

*Wednesday, 11th November* 1891.—Dr BERRY HART, *retiring President, afterwards* Professor SIMPSON, *President-elect, in the Chair.*

I. *Dr John Thomson* exhibited the LIVER from the case of congenital obliteration of the bile-ducts described in his paper on that subject, along with a number of drawings illustrating its minute anatomy.

II. *Dr J. A. Clarke* showed, for Dr Brewis, two SARCOMATOUS UTERI which he had removed during the last fortnight by vaginal hysterectomy. Both are examples of sarcoma. The interior of one uterus was occupied by a mass the size of the fist of soft colloid consistence, attached to the body by a distinct pedicle. This tumour was pronounced by Dr Bruce to be a myxo-sarcoma.

The other uterus presented a good example of the diffuse form of sarcoma. The whole of its endometrium was thickened, to the extent of ¼ inch, by a soft, brain-like substance, which on microscopical examination was found to contain round-celled sarcomatous and also epithelial cells. The ovaries and tubes in the latter case were also removed.

III. *Dr J. C. Webster* exhibited the HEAD OF A FŒTUS which had been delivered by forceps. The case was one of great interest, as showing one of the results of the antero-posterior grip of the head by the forceps during delivery in a flat pelvis. The mother when first seen had been in labour for two days, the waters having escaped twelve hours previously. The child was lying with the head presenting, but above the brim, the long diameter being transverse, the occiput looking to the left side; movements of its limbs were felt from time to time, and its heart was easily heard. The woman was healthy and well-formed, with the exception that there was an antero-posterior contraction of the pelvic inlet, the conjugate measuring between 3¼ and 3½ inches. It was deemed a most suitable case for the employment of the method of delivery so strongly recommended by Dr Milne Murray. The axis-traction forceps were applied without much trouble, save in the passage of the right blade over the face of the fœtus. The first effect of traction was to cause a bulging down of the vertex, the occipital and frontal bones telescoping under the parietals. Then the whole head began to descend. When low down in the pelvis the head began to rotate until at the outlet the occiput came to the front. On complete delivery of the child, which was a large female, it was not breathing, though its heart was beating faintly. Artificial respiration was kept up for some time, but to no purpose. The post-mortem examination of the child revealed the presence of a rupture of the longitudinal sinus half an inch behind the coronal suture. The vertex of the brain under the dura mater was covered with blood, and a large amount was found at the base of the brain around the medulla, having evidently found its way there from the vertex through the subarachnoid space. The injury seems to have resulted from the excessive telescoping of the cranial bones during the passage of the brim. The delivery was conducted with the greatest care, and with the assistance of Dr Fordyce. The mother has made a good recovery.

IV. *Dr J. W. Ballantyne* showed Dr Shibata's OBSTETRICAL POCKET "PHANTOM."

V. *The President* read his Valedictory Address, which appeared at page 489 of this Journal.

*Dr Underhill*, in proposing a hearty vote of thanks to Dr Hart for his valuable and interesting address, observed that valedictory addresses usually consisted of a few remarks *de omnibus rebus et* *quibusdam aliis;* but Dr Hart had wisely and well adopted another method, and given them a graphic historical review of the modern development of Gynæcology. He had shown them how much there was to be proud of in that evolution, and what a large share in it had been the work of the British Schools of Medicine, and had pointed out the by no means small part which had been played by members of their own Society, headed by their founder, Sir James Simpson. Had he thought fit to include in his remarks the advances which had been made in the anatomy and physiology of the generative organs in health and disease, he might well have added, "*et quorum pars magna fui.*" Dr Hart had also warned them, by many striking illustrations from the history of the subject, of the dangers and follies which are sure to arise when practices are based upon theory without the support of adequate pathological inquiry. The address was altogether a most instructive one. He would add that their thanks were also due to Dr Hart for his wise and courteous conduct of the business of the Society, for his able and lucid summing up of their debates, and for the many admirable papers he had contributed to their meetings during his term of office.

*Professor Simpson*, on taking his place for the third time in the President's chair, desired to express his thanks for the kindness the Fellows had shown him in calling him to occupy the not unfamiliar seat. Since he had last occupied it the dignity of the position had been well maintained, and not least efficiently by Dr Berry Hart, who while still young had made his name known to obstetricians both in the Old World and the New, and to whom they would still look to render valuable services to science and to the Society which had delighted to have him as its President. He (Professor Simpson) was well aware that there were other Fellows who might have been called now to fill the office, but he could understand why they might be willing to have a prospective President of the Royal College of Physicians to preside over the Society, as it was but seldom that the presidency of the College fell to the lot of an obstetrician who might be expected to take an active interest in the Society's work. It was a pleasure to him, on looking round the room, to note how the seats were filled by men of a younger generation, many of whom had already done admirable work, and were well capable of making the session on which they were entering memorable for the value of its Transactions.

*The retiring President* again expressed his deep sense of the great courtesy and kindness he had received from the Fellows during his term of office, and the great pleasure it was to him to be succeeded by Professor Simpson.

VI. *Dr Berry Hart* read his note on a case of VAGINAL HYSTERECTOMY FOR CARCINOMA CERVICIS IN EARLY PREGNANCY, which will appear in a future number of this Journal.

VII. *Drs Berry Hart* and *G. L. Gulland* gave their lime-light demonstrations of DEVELOPMENT OF FEMALE GENITAL ORGANS IN EARLY FŒTAL LIFE.

*The President* said Dr Hart had laid them that evening under an unusual amount of obligation. He had delivered the interesting Valedictory Address of which they had expressed their admiration, and now he had inaugurated the papers of the new session with two contributions, each of which was of the greatest value. They must congratulate Dr Hart on the success that had attended his operation for the extirpation of the cancerous gravid uterus, and they had reason to congratulate the Society and science that the rare preparation had fallen into hands so competent to deal with them as those of Dr Hart and his assistant Dr Gulland. The demonstrations he had given were quite fresh and instructive, and the drawings that were being made of the beautiful sections would prove highly valuable in illustrating the development of the pelvic organs and their relations in the early embryo.

*Dr J. W. Ballantyne* considered that the demonstration given by Dr Hart was of exceptional interest, and he could not recollect any series of plates which gave so clear a picture of the development of the genital organs in the female fœtus. The close relations of the kidney, Mullerian ducts, Wolffian bodies and ducts, and ovaries in the early embryo served to explain many anomalous states that existed in later life, and the sections that had been shown to the Society made clear how very intimate these connexions were. Dr Ballantyne felt it much easier now to understand how, for example, a displaced kidney might be found surrounded by a peritoneal coat continuous with that forming the broad ligament, as in a case of which he had recently read a description. The demonstration of the original separate condition of the two component parts of the ovary—that derived from Wolffian relics, and that originating in the epithelium of the genital ridge—made it easy to understand the differences in pathology and prognosis which existed between the various cystic and solid growths in the ovary. It would have added still further to the value of the communication if the levels of the organs with relation to the vertebræ could have been fixed; but probably this information would be forthcoming in another paper.

*Dr Haultain* endorsed Professor Simpson's remarks congratulating Dr Hart on the value of the lime-light demonstrations of the development of the pelvic organs. The great thickness of the tissue of the broad ligaments seemed relatively large, and he would like to know if Dr Hart could account for it, also the appearance of three openings in these ligaments; the two lateral seemed to represent transverse sections of the Mullerian ducts, but the central larger one he was at a loss to account for. He thanked Dr Hart personally for demonstrating so graphically the development of these organs, as it had always been to him a subject difficult to understand; and he was sure that when represented in pamphlet form, the plates would help many to the easy and thorough mastering of a difficult but interesting subject.

*Dr Berry Hart*, in reply, expressed his thanks to the Fellows. The greater thickness of the broad ligament and the number of openings was probably to be accounted for by an obliquity in the section.

VIII. *Dr John Thomson* read an abstract of his paper on CONGENITAL OBLITERATION OF THE BILE-DUCTS, which appears in full at pages 523 and 604 of this Journal.

*Dr J. W. Ballantyne* thought that the Society was specially indebted to Dr Thomson for bringing before them at such length, and in so complete a manner, this difficult and interesting fœtal condition. There were many unsolved problems in fœtal physiology and pathology which the study of congenital obliteration of the the bile-ducts opened up. The recurrence of such a malformation in successive children was extremely interesting. He had read recently in a New Zealand medical paper of a case in which a woman had given birth to five infants in succession, in all of whom there was an impervious condition of the bile-ducts. The length of time that an infant might live without bile in the intestine was another striking fact in some of these cases, and suggested new theories as to the functions of the bile in digestion. There was a great need for some symptom or sign which might enable them to diagnose between the jaundice of the new-born infant due to such grave lesions as those described by Dr Thomson and that caused by passing disturbances in the liver and duodenum. Dr Ballantyne thought that Dr Thomson was right in giving most weight to the theory of malformation rather than to that of inflammation.

*Dr Thomson* thanked the Society for the way in which they had received his paper.

## BRITISH LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

THE first meeting of the Session 1891–92 was held at the rooms of the Medical Society, Chandos Street, on Friday, the 27th November, when Mr Lennox Browne, the newly elected President, delivered an Address, taking for his subject "A Quarter of a Century's Retrospect of Laryngology." He first referred to the fact that the opportunities in the shape of special hospitals and special departments at general hospitals for the treatment of disease of the throat, as well as the number of patients applying for relief, had multiplied tenfold since the establishment of the Throat Hospital, Golden Square, in 1865, by Dr Morell Mackenzie, and that that and other special institutions, now considered by some unnecessary, had been the direct means of teaching all those general surgeons of the metropolis who are attached to special departments, or those others who have since established other special hospitals; and that this is equally true of the provinces and colonies. He also claimed that all the best original work in this, as in other specialties, had come not from the general surgeon who flirted with a specialty, but with the well-educated specialist who devoted his life to it.

As both a warning and an encouragement, and not for the sake of amusement, the President recalled the ridicule and incredulity with which the laryngoscopic observations of Garcia were received, and the insolent assertions that a special hospital for diseases of the throat to be diagnosed and treated by the aid of the laryngeal mirror was the acme of quackery. Not indeed that the Throat Hospital was more abused than was the now accepted Royal Ophthalmic Hospital of Moorfields, founded in 1804, of which Sir Astley Cooper was one of the Committee, this noble institution being described by the medical journal of those days as a "shop for the reception of gulls" and for the "cutting out of eyes," and yet technically an Eye Hospital and a Throat Hospital were precisely on a similar basis of justification.

And what had been said of Laryngology twenty-five years ago was now being said of Rhinology; and to justify the outcome of this branch of the science Mr Lennox Browne devoted his address. He deduced striking statistics from the reports of the Throat Hospital in Golden Square and the Central London Throat and Ear Hospital in Gray's Inn Road, which between them treated over 13,000 new patients yearly, to prove the truth of the statement of Bosworth of New York, that the majority of diseases of the larynx, trachea, and bronchi commence in the nose, which may well be termed "the front door" of the respiratory passages. Careful statistics taken at the Central London Throat and Ear Hospital had proved that "spurs" and deviations of the septum were, if not the cause, as Bosworth asserted, of hypertrophic rhinitis, and of many other intranasal causes of obstruction, at least associated with it, to an extent calling for treatment, in no less that 87 per cent. of the cases that came under notice.

The President also alluded at some length to the far extending effects of mouth breathing due to adenoids, as instanced by impairment of hearing, sight, respiration, and speech, and of general mental development of the young. Amongst other comparatively unrecognised consequences of this condition were laryngismus stridulus, and laryngeal growths in young children, cases illustrative of which he had himself had the honour to be the first to report at that Association.

Passing onwards, the lecturer referred to the enormous advantage in the detection and treatment of tuberculosis generally as learnt through the lessons of the laryngoscope; to the value of the microscope in its more perfect development of recent times, which he attributed to the powerful exhortation of Sir James Paget, "to examine each morbid growth or product directly after its removal from the living body, while it may be deemed still alive;" to bacteriology, the younger sister of histology; and, lastly, to the high importance of searching for constitutional bases for all special and apparently local maladies, and for correction by education of disorders of the voice through the intelligent application of physiology.

The President concluded his address by quoting an eloquent peroration of Sir James Paget, to the effect that we must not be content with present utility, for that our utility can only be increased by every increase of our real knowledge.

## ROYAL MEDICAL SOCIETY.

*Nov.* 20.—Dr Fuller in the Chair. *Dr Fitzgerald* delivered his Presidential Address, in which he traced the history of Medicine from its early records in the literature of ancient Egypt to the time of Galen. He showed that the impediments to the growth of knowledge which then existed were similar to those met with in the present day.

*Dr Musgrove* then gave a lantern demonstration on the "Blood Supply of the Retina." The objects shown were injected specimens of the retina of the ox prepared by Dr Musgrove after a new and original method, whereby the bloodvessels of the whole retina can be demonstrated by the lantern or microscope in a most admirable manner. Vertical sections of similar preparations were also shown. The conclusions arrived at by Dr Musgrove differ essentially from those of previous observers, and form an important addition to the knowledge of this subject. Drs Fitzgerald, Crerar, and Drummond, and Mr Keng took part in the discussion.

*Dr Renton* then gave a short communication on the case of a child recently seen by him, who was suffering from double lateral abdominal hernia and probable absence of the diaphragm. Drs Fitzgerald and Giles, and Messrs Keng and J. Wallace took part in the discussion.

*Nov.* 27.—Dr Miles in the Chair. *Dr Fuller* delivered his Presidential Address, in which he spoke of the advantages of a wider general culture to medical men, both as a means of relaxation and of widening their sympathies.

*Mr Keng* read the notes of a case which had occurred in the course of his dispensary practice, where the patient suffered from abdominal symptoms of a somewhat anomalous character, giving rise to some difficulty in diagnosis. The occurrence of the signs of phthisis made it probable that the case was one of tubercular ulcer of the bowel. Drs Fitzgerald, Spurway, Livingstone, and Mr Hutchison referred to cases in which there were similar difficulties in diagnosis.

*Dr J. W. Crerar* then communicated a method for the Treatment of Influenza introduced by Dr Crerar of Maryport. It consisted in the administration of large and frequently repeated doses of bicarbonate of potassium, and the speaker had personal experience of its efficacy in several hundred cases. Drs Spurway, Cockburn, and Mr Keng spoke, the first of these gentlemen confirming Dr Crerar's statements from his own experience of the remedy.

*Mr G. L. K. Pringle* then read his dissertation on the "Surgery of the Liver and Gall-bladder." He discussed the diseases of these organs allowing of surgical treatment, and the measures which have been adopted for their relief, illustrating his remarks by reference to recorded cases. The paper contained a valuable summary of the more recent work on this subject. The dissertation was afterwards discussed by a large number of the members present, the chief topics being the improbability of removing cancerous tumours of the liver with ultimate success, and the diagnosis and treatment of hepatic abscess.

*Dec.* 4.—Dr Berry in the Chair. *Mr M'Beth Elliot* read the notes of a case lately under treatment in the Infirmary, where the patient suffered from several anomalous nervous symptoms, more especially marked hyperæsthesia in the lower limbs. The case was discussed by Drs Chasseaud, Spurway, Turner, and Fitzgerald, and Mr Keng, who differed considerably as to the probable cause of the symptoms.

*Mr W. R. Martine* communicated two cases, one of sarcoma, the other of abscess of the femur, in which the symptoms were almost identical in the earlier stages, but formed a marked contrast in their results. His remarks were illustrated by drawings, charts, and pathological specimens. An interesting discussion followed, in which considerable differences of opinion were exhibited as regards the usefulness of iodide of potassium in doubtful cases of malignant disease.

*Dr R. P. Cockburn* then read his dissertation on "Responsibility in Mental Disease." After defining the scope of his paper, the writer traced the evolution of legal opinion regarding the responsibility of the insane, especially with regard to criminal acts. He considered the present laws on the subject unsatisfactory, from the narrow views on mental disease held by many legal authorities. He finally discussed the question of the punishment of insane criminals, and favoured the view that they should rather be put under proper restraint and medical treatment. The paper was a very successful treatment of an important medical subject from its legal aspect. The discussion was chiefly directed to the question as to the treatment of the insane criminal, by punishment or restraint, the majority siding with Dr Cockburn in favour of the latter.

*Dec.* 11.—Dr Fitzgerald in the Chair. *Dr A. L. Turner* showed a patient with a cervical rib on the right side, and communicated some notes on this subject. He also discussed the clinical importance of the anomaly, and the errors in diagnosis to which it might give rise. Drs Miles and Fitzgerald and Mr D. C. Watson spoke on the subject, and referred to other cases they had seen.

*Mr J. P. Stewart* read a paper on the "Surface Anatomy of Nerves," and pointed out that almost all the superficial nerves which cross resistent structures may be felt on the living body. There was some discussion on the possible clinical importance of this subject.

*Mr Lim Boon Keng* then read a paper on "Nosology," in which, after briefly indicating the various methods which had been adopted for the classification of disease from classical times to the present day, he criticised those most frequently used by modern writers. He considered an etiological basis unsatisfactory, from the frequent changes necessary in the imperfect state of our knowledge. He then described a system he had constructed as an aid to diagnosis by the classification of groups of symptoms in a manner which he had found of great practical value. Mr Keng was warmly congratulated on his paper, which most of the speakers considered as likely to prove useful.

# Part Fourth.

## PERISCOPE.

### OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. Allan Jamieson, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

The Contagiousness of Common Warts.—Dr Payne, from his own experience, furnishes an instance in support of the widespread belief that common warts are transmissible from one person to another, as well as from one part of the skin to another. When treating a boy who had a very copious eruption of warts, which had apparently spread from and originated in a very large and horny one on the palm of the right hand which had existed more than two years, he inoculated himself. When the warts were rendered soft and crumbling by the methods adopted, he found the process was accelerated by scraping them away with the back or handle of a scalpel. On one occasion he thoughtlessly used his thumb-nail to assist the operation. After a few days he noticed some redness and swelling under the nail which had been thus used, and in about a week an unmistakable horny wart appeared on the spot, then a second and a third on the back of the same thumb. These disappeared in a few weeks without treatment. So far as he could recollect he had never previously suffered from warts. He thinks warts are produced by the implantation of some contagious material at one or more points of the skin; this may be favoured by want of cleanliness, but they are not due to this latter cause alone. There is also some degree of idiosyncrasy, as many, though exposed under similar circumstances, escape. In treatment the collodion of salicylic acid does not always succeed. In this case the application of some light caustic, such as acetic acid, either concentrated or diluted to half-strength, several times a day is a good plan. —*British Journal of Dermatology*, June 1891.

THE TREATMENT OF ALOPECIA AREATA.—Dr Prince A. Morrow holds that evidence is in favour of alopecia areata being caused by a specific germ. Though this has not so far been isolated, yet, whatever may be the micro-organism, the pathological result is an impairment of the nutrition of the affected areas. The clinical phenomena—the smooth, pale patches, the anæmic skin, the collapsed hair follicles, and the arrest or suspension of their function—all point to the participation of the nervous system in their production. While neither food nor medicine exercises, so far as we can distinguish, any direct specific influence upon the nutrition and growth of the hair, yet we know that local nutritive processes are favourably influenced by hygienic and therapeutic measures, which invigorate the general health and improve the general nutrition of the system. Especially in cases where the disease is generalized and protracted, the effect of local treatment may be materially aided and energized by the exhibition of tonics and reconstituent remedies. In all cases where there is evidence of a loss of nerve tone he is accustomed to give the phosphide of zinc and strychnia — a combination of phosphorus, iron, and strychnia, or phosphoric acid with strychnia. But it is at the same time unnecessary to subject strong, robust individuals to a methodic general treatment, if the patient's general health is good. Constitutional treatment is of subordinate importance. The principle of local treatment may be summed up in one word—*stimulation*. In the simpler, more benign cases, where the patches are limited in number and circumscribed in extent, the hair round the margin of each is to be closely clipped. This permits of a more thorough inspection, while it facilitates the application of remedies. As the disease always advances by peripheral extension, the hairs in this "zone of protection," as it has been termed by Besnier, are subjected to a modified form of epilation. The hair should be grasped lightly by the forceps, and, if it yields readily, should be extracted. If it resists moderate traction, the grasp of the forceps should be relaxed, and the hair allowed to remain. This tentative traction is an excellent test for the detection of diseased hairs, and should be frequently resorted to during the course of treatment. In recent cases he is accustomed to use chrysarobin eight to ten per cent., and salicylic acid two to five per cent., in traumaticin or lard,—the latter method insures more thorough penetration. This should be applied every three or four days in sufficient strength to excite and maintain a moderate dermatitis. In cases where the disease is severe and more extensive, covering the greater part of the scalp, the hair should be cut closely or shaven, and the entire surface should be treated with acetic acid mixed with chloroform or ether. He usually employs a mixture of equal parts, the relative proportion of the acetic acid being graduated to suit the reactive peculiarities of the tissues, which vary in different individuals, and even in the same individual at different stages of the disease; ordinarily a strength sufficient to produce the white nitrate of silver tint is employed. This superficial vesiculation is followed by a slight exfoliation of the epidermis. In the intervals between these applications—which are repeated two or three times a week at first, and continued at longer intervals during the entire course of treatment, and which should be made by the physician, and not entrusted to the patient—a stimulating oil should be applied once a day. This is composed as follows,—Oil of eucalyptus, oil of turpentine, each half an ounce, crude petroleum and alcohol, each one ounce. The application of this oil is to be followed by a thorough massage of the scalp for five minutes, which the patient can be instructed to perform. This massage, besides aiding the penetration of the oil, is an effective stimulus to the scalp. Once a week, or oftener, the head should be shampooed with the tincture of soft soap. At a later stage of the disease he replaces the oil by sulphur-ointment, with or without resorcin. Daily douches and frictions with salt water are also advantageous. In alopecia affecting the hairy structures of the face he also uses the acetic acid, but the strength must be modified to suit this more sensitive surface. As, however, the redness resulting is apt to persist, and the exfoliation is unsightly, he more commonly advises daily frictions with tincture of cantharides, or tincture of capsicum, in an equal quantity of glycerine. For alopecia of the body the extensive surface contra-indicates the use of active irritants, and milder measures are fortunately sufficient. The use of mercurial and tar soaps, and the employment of sulphur baths, are the only measures necessary. Such is the outline of the method of treatment which he has employed for some time with invariably satisfactory results. —*Journal of Cutaneous and Genito-Urinary Diseases*, Oct. 1891.

ECZEMA OF THE LIPS.—Dubreuilh points out that there are at least four forms of eczema which attack the lips. 1. The commonest is the sycosiform eczema of the upper lip, which is often associated with chronic rhinitis. 2. The elephantiasis-like eczema of the upper lip, seen in young strumous persons. 3. A form described by Kaposi, which is especially seen in elderly women, attacking particularly the red portion of the lip, with the formation of fine cracks and blood crusts, and accompanied by pretty severe itching. 4. The seborrhoic eczema of the lips. This appears as small red spots on the red of the lips and adjoining parts, but soon becomes a general redness, with the continual formation of small transparent scales, resembling healthy and dry epidermis, becoming readily moist on their under surface. There is complaint of heat and tension. The epithelium assumes a yellowish hue, and separates in thicker, larger flakes, often attached in the centre, while the margins are free. Under these new epidermis forms which passes through a similar process. It is persistent and obstinate. Unna ascribes eczema seborrhoicum to a functional disturbance of the sebaceous and coil glands; but Dubreuilh thinks the causation must be sought elsewhere, since these glands are absent on the lips. This form of eczema is specially apt to recur, and a treatment which seemed efficacious in one outbreak may prove powerless in a second. He has had good results with tar and sulphur, while Kaposi employs liquor potassæ as a caustic. Hallopeau scarifies such cases, and Brocq uses an ointment of naphtol and yellow oxide of mercury. Several illustrative cases in which the same form of eczema existed elsewhere are cited.—*Monatshefte für prakt. Dermatologie*, Bd. xiii. No. 8, 1891.

THE TREATMENT OF SCROFULODERMA AND LUPUS.—Dr Brooke has somewhat modified the method of treating lupus by an ointment of oleate of mercury, salicylic acid, and ichthyol, which he published a year since. Finding in some cases the original formula too strong, he has reduced it, combined it with Lassar's paste, at the same time adding sufficient red Armenian bole and raw umber to match the colour of the skin—

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|---|---|
| ℞ Zinci oxidi, | |
| Amyli pulv., | āā ¼oz. |
| Vaselini albi, | ½oz. |
| Hyd. oleatis, 5 % | 1oz. |
| Acidi salicylici, | gr. xx. |
| Ichthyolis, | ♏xx. |
| Ol. lavendulæ, | q. suff. |

M. fiat ung coloratum.

This, when well rubbed in and then covered with potato-starch powder, completely disguises the disease, and attracts very little attention. He sometimes diminishes the salicylic acid and increases the ichthyol. The action is most rapid in cases of scrofulodermic tumours and ulcerations, but is also pronounced in those in which lupus has developed from the scrofulodermic basis. In pure lupus the effect is distinctly weaker, especially in those where there is much sclerosis or old scarring.—*British Journal of Dermatology*, December 1891.

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## OCCASIONAL PERISCOPE OF DISEASES OF CHILDREN.

By JOHN THOMSON, M.D., F.R.C.P.E., Extra-Physician to the Royal Hospital for Sick Children; Lecturer on Diseases of Children, School of Medicine, Edinburgh.

INFANTILE SCURVY.—Professor Pott of Halle reports two cases of scurvy with subperiosteal hæmorrhages in infants. Both patients were girls, and both occurred in his private practice. In neither case were the hygienic conditions such as to explain the scorbutic taint, and both children were carefully nursed and fed. In the first case, the child was 13 months old when first seen. She presented the usual symptoms of infantile scurvy—a dirty gray complexion, very profuse sweating, extreme pain on the slightest movement, spongy bleeding gums, loss of appetite, recurrent diarrhœa, tense and painful swelling of both tibiæ, with low temperature. There were no signs of rickets. After improving a little for some weeks, she got rapidly worse, and died. The other child began to show scorbutic symptoms at nine months, and recovered after nine or ten weeks' illness. She showed most of the above-mentioned symptoms, and also had recurrent attacks of œdema and ecchymoses of the eyelids. She differed from most cases of this condition in suffering from persistent constipation, and also in having, for many weeks, a painful afebrile swelling of both knee-joints; this symptom appeared about a month before the periosteal hæmorrhages, which in this case affected the femora. As to treatment, Professor Pott believes strongly in the value of sunshine and fresh air, regular bathing, and careful milk diet. He gives small doses of iron, but does not believe much in citric acid. He mentions with approval the use of the juice of the cloud-berry (*Rubus chamæmorus*), which is recommended by Dr Nordenskjöld.—*Münchener medicinische Wochenschrift*, November 17 and 24, 1891.

MEDIASTINO-PERICARDITIS IN CHILDREN. — Dr Henry Ashby records two cases of this interesting condition, and discusses the pathology and possible results of mediastinal inflammation. The loose areolar tissue in the mediastinum is very apt to become implicated in inflammatory processes affecting either the glands, the lungs, the pleuræ, or the pericardium. At the post-mortem, it may be impossible to say in which organ the mischief began, and which were only secondarily affected. The chronic inflammatory thickening which results causes matting together of the thoracic organs, and this leads to serious interference with the circulation. This interference may be brought about in several ways. The heart may be hampered in its action by adhesions of the pericardium either to it or to the surrounding structures; and these prevent effectual systole, and consequently complete filling of the arterial system. Again, the movements of the thoracic walls may be restricted by the adhesions, and this may prevent the large veins being properly emptied by inspiration. Lastly, the large veins of the thorax may themselves be constricted by the fibrous tissue, or they and the aorta may be compressed by the dragging of adhesions during inspiration. If the circulation be interfered with in one or more of the above ways, we have over-filling of the venous system, œdema, and sometimes ascites. The greatest effect, however, is on the liver, which, owing to the constant state of congestion in which it is kept, becomes enlarged and "nutmeg," and ultimately is affected with a form of secondary cirrhosis. The early symptoms are vague and indefinite, and usually nothing attracts attention until ascites develops. On examination this may be all that can be made out, or there may be some œdema of the face or fulness of the veins of the neck, suggesting obstruction to the return of blood to the lungs. Sooner or later, the liver is found to be enlarged; there is evidently portal obstruction, but without obvious cause. Some of the cases are very chronic; they are relieved by tapping, and last for months, even for a year or two, but in the end more or less general œdema occurs. Others are much more acute in their course, especially the tubercular ones. Examination of the front of the chest sometimes reveals an increased area of dulness, but sometimes there is no abnormality discoverable. A weakening of the pulse with deep inspiration is said to occur in these cases; but this symptom is not always found, and was not present in either of Dr Ashby's cases.—*The Medical Chronicle,* December 1891.

HYSTERIA IN INFANTS AND CHILDREN UNDER TWO YEARS.—M. Ed. Chaumier of Tours read a paper on this subject at a recent meeting of the Académie de Médecine in Paris. He thinks that in very young children hysteria is often overlooked and mistaken for other things. Its symptoms vary according to the severity of the attack. When very slight, it takes the form of frequent causeless attacks of passionate screaming. In more marked cases, the limbs become more or less rigid and the face purple and congested, and sometimes these symptoms are accompanied or followed by tremor. When more severe, the child suddenly begins to cry, and loses consciousness completely; the body is usually stiff and the mouth wide open, but sometimes the body is quite flaccid. In some cases, these attacks come on in the middle of a fit of coughing, and they are then apt to be mistaken for false croup. He also describes a more aggravated form of the disease, in which the symptoms resemble those met with in adult cases. The child loses consciousness, and becomes quite rigid, with its eyes turned up, and the stiffened limbs may twitch or they may be thrown about wildly. In other cases the body is quite flaccid and inert. Sometimes such attacks occur at short intervals; they are then often mistaken for meningitis. Hemiæsthesia and hyperæsthesia may exist, but they are almost impossible to make sure of; but contracture and paralysis cannot be overlooked, nor can the absence of the ocular and pharyngeal reflexes, which M. Chaumier has frequently observed. The prognosis is favourable. Recent investigations prove that hysteria is more easily cured in the infant than in the adult; and there is reason to believe that the earlier the treatment is begun, the more likely is it to be successful.—*La Semaine Médicale,* 2nd December 1891.

DIPHTHERITIC ALBUMINURIA AND NEPHRITIS.—Dr Joseph Kuck summarizes the results of his observations on these subjects, in 436 cases of pure diphtheria, as follows:—1. Albuminuria is met with in about 86·5 per cent. of all the cases of diphtheria occurring in Munich. 2. The earlier the albuminuria appears, the more severe is the diphtheria and the worse the prognosis. 3. There is no constant relationship between the albuminuria and the temperature. 4. Formed elements are but rarely found in the urine, and, post-mortem, the kidneys appear normal in the great majority of the cases. 5. When there is much albuminuria and nephritis, streptococci are generally found in the kidneys. 6. Rare cases of diphtheritic nephritis with œdema and uræmia do occur, but hæmaturia is extremely seldom met with.—*Münchener medicinische Abhandlungen*, II. Reihe, 3 Heft.

# Part Fifth.

## MEDICAL NEWS.

Royal College of Physicians, Edinburgh.—The following gentlemen passed their Final Examination for the degree in Medicine at the sittings held on December 2, 1891, and were admitted L.R.C.P. Ed.:—Wordsworth Leach Allott, Yorks.; Charles Everard Oldacres, Leicester.

## ROYAL COLLEGE OF SURGEONS, EDINBURGH.

The following gentlemen having passed the requisite examinations, have been admitted Fellows of the College since last publication:—H. W. F. Powell, L.F.P. & S.G., London; W. L. Woollcombe, M.R.C.S. Eng., Plymouth; C. Seal, M.R.C.S. Eng., Edinburgh; A. Logan Turner, M.B., C.M., Edinburgh; Ernest James Gibson-Berkley, M.R.C.S. Eng., London; Alfred Maitland Gledden, M.R.C.S. Eng., London; Duncan Campbell Longden, M.B., C.M., Edinburgh; Alfred Taylor, L.R.C.P. Irel., Bolton-le-Moors; Percy Charles Edward D'Erf Wheeler, M.R.C.S. Eng., London, and George Arthur Hawkins-Ambler, L.R.C.P. Irel., Bristol. And the following gentlemen have been admitted Fellows without Examination:—Isaac Mossop, L.R.C.P. & S.E., Bradford, and David Little, M.D., Manchester.

The following gentlemen having passed the requisite examinations, were admitted Licentiates of the College:—John William Goldon, Parsonstown; Joseph Fuller, Co. Cork; Albert Edward Dyas, Kells Meath; Edward Barnard Fuller, Cape Town; William Thomas Crawford, Edinburgh; Christopher John Byron Johnson, Martock; and John Henry Thomson, Bury St Edmunds.

The following gentlemen having passed the requisite examinations, received the Diploma in Public Health of the College:—Charles George Robson Scott, M.R.C.S. Eng., Newton, Jedburgh, and Robert Beveridge, M.B., C.M., Leith.

The annual examination in Materia Medica and Therapeutics, for the Gold Medal presented to the College by Colonel William Lorimer Bathgate, in memory of his late father Mr William M'Phune Bathgate, F.R.C.S.E., took place on 31st October. Five candidates underwent examination, and the medal has been awarded to Patrick M'Elwaine, Edinburgh.

Dinner and Presentation to Dr Murdoch Brown.—A Public Dinner was given to Dr Murdoch Brown in the Waterloo Hotel, Edinburgh, on 27th November, on the occasion of his retirement from the Tutorship of Clinical Medicine in the University of Edinburgh, a post which he has filled for the past sixteen years with great acceptance to those connected with him in his work, and to his old pupils. Professor Sir Douglas Maclagan presided, and there was a company of nearly 100. Among those present were Professor A. R. Simpson, Professor T. R. Fraser, Mr Thomas M'Kie, advocate, and Professor A. P. Aitken. Apologies for absence were read from Lord Provost Russell, Professors Rutherford, Grainger Stewart, Annandale, Emeritus-Professor John Struthers, Professors Gairdner and M'Kendrick, Glasgow; Sir Arthur Mitchell, the President of the Royal College of Surgeons, Dr Heron Watson, Dr Peel Ritchie, Dr John Duncan, Dr Affleck, Dr A. Wallace, London, and many others who were unable to be present. The Chairman, in proposing the toast of "The Guest," made a Presentation to Dr Murdoch Brown, consisting of a silver salver and a purse of sovereigns, from medical professors and his old pupils. In doing so, he spoke of the high qualities which Dr Brown had brought to bear upon his work as clinical tutor. Dr Brown, in accepting the Presentation, mentioned that he purposed converting the gift into some form which in the future would serve to commemorate the occasion. The short toast list which followed included the "University of Edinburgh," proposed by Mr Thomas M'Kie in the unavoidable absence of the Lord Provost, and replied to by Professor Fraser; and the "Acting Committee" in charge of the arrangements, proposed by Professor Simpson, and replied to by Dr David Hepburn. Later on several songs were given, and a most pleasant evening was passed.

DR BATEMAN.—In addition to making Dr Bateman a Laureate of the Academy of Medicine of Paris, that learned body has awarded to him the Alverenga Prize in Medicine for his book on "Aphasia." This honour he obtains in conjunction with Dr Seguin, who is bracketed *ex æquo* for his treatise on "Renal Calculi."

COMBINED SPATULA, PEN, AND PENCIL.—Messrs Burroughs, Wellcome, & Co., with their accustomed ingenuity, have devised a most capital combination of above. The spatula, which is white metal nickel plated, makes a most excellent tongue depressor as well as a paper-cutter, and the pen and pencil are concealed in its handle. The price is absurdly small, being only sixpence.

PROFESSIONAL MEMORANDA for 1892.—Messrs Burroughs, Wellcome, & Co. have sent us a copy of the above. Practitioners will find it very useful and easy for reference. It occupies little space, and will prove suitable for the study table.

## OBITUARY.

### DR JAMES DONALDSON GILLESPIE.

BY the death of Dr Gillespie, after a comparatively short illness, on 7th December, the profession in Edinburgh has lost one of its oldest, most respected, and most beloved members. In this brief notice of our departed friend we can do little more than glance at some of the more salient points in his character, and some of the more important incidents in his bright, cheerful, and many-sided life.

Born in Edinburgh on May 16th, 1824, he was the son and grandson of two respected Edinburgh medical men. Like the Bells, Inglis, Maclagans, Russells, and Woods, the Gillespie family kept up, and we are glad to say still maintains, the professional succession,—father handing down to son, generation after generation, not only the family practice, but the traditions of professional probity, courtesy, and conduct which were so well maintained in the whole career of our friend.

His grandfather, Dr Thomas Gillespie, is to us of the present generation only a *nominis umbra*, but his father, Dr Alexander Gillespie, once President of the Royal College of Surgeons, was well known to many still alive as a fine, courteous, courtly old gentleman, who worked his easy aristocratic practice with a light hand, the friend and counsellor, as well as the doctor, of many of the old Edinburgh families. In his names James Donaldson Gillespie perpetuated the name of his uncle and godfather James Donaldson, the wealthy and charitable founder of the great palatial hospital which bears his name. The whole career of our friend will be seen to bear the impress of his hereditary right to be a gentleman as well as a surgeon, and a man full of charity to the poor, the old, and the friendless.

After an excellent education at the Edinburgh Academy, then called the New Academy, Gillespie, a lad of 17, began to study Medicine, and in 1843 was appointed a Dresser in the Royal Infirmary. A dresser then held a much more important post than he does now. In 1891 a dresser is fortunate if he has two beds and their inmates committed to his care; in 1843, four dressers had about 50 beds to look after. Once he got his foot fairly into a post, however humble, in the Infirmary, the innate surgical bent of his mind guided his work; and till his retirement as Senior Surgeon in 1871, our friend spent the happiest hours of his day in the wards. For in 1844 and 1845 he had the very exceptional advantage of being Non-resident Clerk (what would now be called Assistant House Surgeon) in Professor Syme's wards. Syme was then in the zenith of his fame, and Gillespie assisted at many operations which were epoch-making and historical, and laid the foundation of a friendship which remained unbroken during the lifetime of his distinguished master. In 1845 he graduated M.D. in Edinburgh University, and also held the very honourable post of one of the Presidents of the Royal Medical Society. The acute intelligence and quite exceptional fairmindedness of the picked students of Edinburgh very rarely are mistaken in estimate of character, and the roll of Presidents of the Royal Medical Society contains very few names which have missed taking high places in the roll of Medicine. Disease and death occasionally blight fair promise, but as a rule a President of the Royal Medical Society makes his mark in after life. After graduation, Gillespie held for two years the coveted post of Resident Surgeon in the Edinburgh Infirmary, first with Professor Miller, and later with Professor Syme. In 1848 he became a Fellow of the Royal College of Surgeons of Edinburgh, and was appointed Surgeon to Gillespie's Hospital. This was (alas! in its original form it is so no longer) a noble charity by which, in a pleasant home in the outskirts of Edinburgh, deserving old men and women found a shelter for their latter days, free from the stigma of pauperism and the hated name of poorhouse. To the last his old patients in Gillespie's Hospital were the objects of our Gillespie's tenderest care. His humour and kindness helped more than drugs.

In 1849 he was elected Assistant Surgeon to the Royal Infirmary. This entailed much work and most valuable experience, for not only had he to assist all the Surgeons at their greater operations in the big theatre, but he had to take their wards in absence, do their night operating when they were out of the way, and it also gave him the charge of the Lock Wards; the valuable and exceptional experience he gained there made him out one of the authorities in his day on syphilis; and had his turn lain in the direction of specialism, might have made him one of the prize winners in that lucrative employment.

In 1855 he was appointed Assistant, and in 1859 Surgeon to Donaldson's Hospital, a position he held with much acceptance to the end. His sympathies for the children, especially for the deaf-mutes, were ever most active, and he felt most strongly the deep wrong and injustice that follow in the steps of the so-called Charity Commissioners, who divert the benefactions of pious testators from their original purpose into fads of all kinds, specially educational.

In 1855 he became one of the acting Surgeons of the Royal Infirmary, which post he held for the usual period of fifteen years, retiring in 1871, when he was appointed one of its Consulting Surgeons. After leaving the active service of the wards and operating theatre, he had more time to devote to family and consulting practice, and the last twenty years of his professional life have been full to the brim of good work given with all his heart to a large and influential circle of patients, who were, every one of them, not only patients but attached friends. In addition to his engrossing practice, Dr Gillespie had many other posts which entailed work of different kinds. He was Medical Referee to several important Assurance Offices, such as the Scottish Union and National, the Northern, and the Sun. He also succeeded his father as Medical Referee to the Merchant Company, and was Medical Officer to the Society for Incurables, and for the Sibbald Pensions. Gillespie was also for many years the Medical Officer to the New Club, of which he was an early member, and within the walls of which he spent many a pleasant hour before dinner at whist, of which noble game he was very fond.

Before leaving the professional side of our friend's life, let us estimate as far as we can in what his strength lay.

As an Operating Surgeon he was neither brilliant nor daring. The rapidity and dash of Liston or Miller had not impressed him; he rather tried to mould himself on the quiet decision of Syme. Still he was not a great operator; he did not like operating enough to make him always happy in emergencies, but he had a wise surgical instinct, and he had the greatest of all merits, from the patient's point of view, that when he had to operate he got it done somehow, and his patients recovered. We have assisted Gillespie to do double primary amputations in a hurry on exhausted patients at night that seemed hopeless; the flaps were roughly made, the bandages did not look very right, and he was worried and bothered till he got the patient off the table; but somehow or other next day the patient was alive and cheerful; dressing and careful feeding and attention to all the minutiæ of bowels and kidneys pulled the patient through after all.

As a teacher Gillespie was not eloquent, nor always at ease in the lecture-room. He was better at the bedside; but his clinical lectures were always carefully prepared, and his instruction on cases in the waiting-room was always practically valuable. He taught you to treat the patient as well as the disease, his digestion as well as his ulcer, not a bad lesson for young men in these operating days.

Gillespie was not a voluminous writer, though he had a ready pen and a quick wit. His contributions to medical journals are not very numerous, and are all characterized by a practical common sense. They are not theoretical,—either relate cases of interest or describe modes of treatment he had found by experience to be safe and suitable.

A list, by no means exhaustive, but including most of those he himself judged to be important, is appended.

1857.—"Condyloma, its Pathology and Treatment," *Edin. Med. Jour.*

1858.—Cases in Surgical Practice: "Excision of Knee-Joint," *Edin. Med. Jour.*

1858.—Cases in Surgical Practice: "Abscess in Right Thigh connected with the Bowels; discharge of three Bones of a Leveret therefrom," *Edin. Med. Jour.*

1859.—"The Wire Seton in Hydrocele," *Medical Gazette.*

1859.—"Case of Impending Suffocation from a piece of Mutton stuck in the Pharynx," *Edin. Med. Jour.*

1860.—"Extraction from the Rectum of a Pin accidentally swallowed," *Edin. Med. Jour.*

1862.—"On the Dangers of the Wire Seton in Hydrocele," *Edin. Med. Jour.*

1862.—"On Acupressure," *Edin. Med. Jour.*

1863.—Cases in Surgical Practice: "Case of Fracture of the Sternum, with Pyæmia," *Edin. Med. Jour.*

1863.—Cases in Surgical Practice: "Suicidal Wound of Throat," *Edin. Med. Jour.*

1863.—"Case of Fatty Tumour on the Arm of an Infant," *Edin. Med. Jour.*

1863.—"Case of Secondary Amputation of Thigh, owing to Hæmorrhage 3½ months after operation," *Edin. Med. Jour.*
1864.—"Excision of Head of Femur," *Edin. Med. Jour.*
1865.—"On the Arrestment of Hæmorrhage after Operation," *Edin. Med. Jour.*
1870.—"Resection of Wrist-joint," *Edin. Med. Jour.*

It was as the trusted family practitioner and friend that Gillespie's chief strength lay, and in this work he really took most pleasure. His sound sense, his courtesy, his tenderness of heart, and gentle demeanour in the sick-room, united to make him a very delightful doctor, and he had one most valuable additional quality,—he was so little jealous or self-seeking that he welcomed rather than disliked a consultation on a doubtful case. Many a man of his name and standing might have felt it almost as a slight to meet in consultation some young specialist of half his years and a tenth of his experience. Not so Gillespie, he welcomed—generally suggested—consultation, and when the meeting took place it was a pleasure to everyone.

But one feature in professional life Gillespie could not away with,—any attempt at pushing, advertising, collaring other men's patients—anything, in a word, which derogated from the nobility and mutual forbearance of a noble profession; anything like the tradesman's competitive art moved him to the quick. Honourable and true himself, it was long before he could believe that other men could be less so; but if he found them out, if he detected the arts of the quack or the tradesman in a neighbour, no one could be more justly roused to righteous wrath. The traditions of a more generous and less crowded profession in the last generation lingered in his mind and manners, and the little meannesses and artful ways, which now are merely noted and smiled at, raised his just contempt. His kind heart made him forgive the sinner, but his keen sense of honour made it hard for him to forget the sin.

In every question of professional etiquette, which simply means the living the life of the golden rule, Gillespie was a most safe adviser, and some of us will always miss his fine sagacity and the courtliness of his whole tone and temper. A few men like him on a board of conciliation would nip most medical squabbles in the bud.

No notice of our friend would be complete that did not allude to the convivial side of his character. *Dulce est desipere in loco* was a motto of which he knew the value; and no man will be more missed than he from that inner esoteric circle of Edinburgh medical life—its dining clubs. One of the oldest, he was also one of the most valued of the *Æsculapians,* and no dinner was complete without a song or two, a speech, and a great many puns, good and bad, from Gillespie. For many years he was also a leading member of the *Medico-Chirurgical Club.* His songs were mostly his own words, sometimes his own music. They are many and varied; some are already published, others well deserve a permanent record. As one of the Secretaries of the *Harveian*, he spared no trouble, not only in procuring new members, but also in making the annual dinner a great success. He also delivered a most interesting Harveian oration upon "Medicine in Shakespeare." He often dwelt upon the special value of the Harveian as a medium for making country practitioners personally acquainted not only with each other, but with the men in town, whose friendship they had few other opportunities of cultivating. It seems but yesterday since we heard him returning his grateful thanks for a splendid punch-bowl the Club gave him to show their deep appreciation of his services.

We shall hear his cheerful laugh no more, but the memory of his geniality and affectionate solicitude for the comfort of the youngest and most shy new member will not be soon forgotten.

Dr Gillespie's relation to his College of Surgeons was that of a most loyal son. He took the Fellowship in 1848, became in due course its President from October 1869 to October 1871, and since that date has been almost always one of the most trusted and regular members of the President's Council. He was made a Member of the Court of Examiners in 1861, and up to October last fulfilled the delicate and onerous duty of Examiner with invariable wisdom and courtesy—wisdom in his decisions, and courtesy to the candidates. In October last, feeling the duties too trying for his strength, he resigned his Examinership, much to the regret of his colleagues, and was immediately appointed a Member of the Board of Assessors. His very last public appearance was at the annual dinner of the College in October, where he exhibited all his wonted cheerfulness and desire to make the guests happy.

Amid all this multifarious work, no man enjoyed a holiday more than Gillespie, and few could turn it to better account. He was a keen sportsman, both with rod and gun, a quite enthusiastic curler and golfer. He appreciated a good horse, and liked to have his own in his carriage; he was fond of all country scenes and sports, and on a holiday was a most delightful companion. Up to the end, though he had practically given up shooting, he loved to have a day on the Tweed when enjoying the delightful hospitality of his old friend and his daughter's godfather, Matthew Turnbull of Coldstream; and during the last summer of his life, when ill able to walk either fast or far, he had some pleasant days' fishing on Gladhouse Reservoir, and in the bonny Logan Water.

His last illness was short and sharp,—pulmonary congestion and hæmorrhage; but for years he and his nearest friends had known well that something was far wrong with his heart, and many an attack of breathlessness and angina had given rise to the worst forebodings. Attended by his old friends Dr G. W. Balfour and Dr Muirhead, in consultation with his son, he died peacefully and painlessly on 7th December.

Dr Gillespie, in 1864, married a daughter of Robert Cadell of Ratho, and he is survived by his widow and three sons. His eldest son, Dr Alexander Lockhart Gillespie, succeeds him in his practice, and already shows he is no unworthy descendant of three generations of good men.

He had one most dearly loved daughter, who died in October 1890 of a rapid attack of diphtheria at a house in Stirlingshire, where the family had been spending their autumn holiday. Her death was a profound shock to her father, and many of his friends felt, that from the day he laid her in the Dean Cemetery, his own eyes had been turning more to the land that is very far off, where there shall be no more death, neither sorrow nor crying.

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Mr Francis Brodie Imlach, F.R.C.S. Ed.—Just as we go to press we learn with regret that this most estimable man died with startling suddenness while walking on the South Bridge, Edinburgh, on December 24th. A notice of his life and character will appear in our next issue.

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## PUBLICATIONS RECEIVED.

A Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools. J. & A. Churchill, Lond., 1891.

J. Althaus, M.D., etc.,—The Pathology and Prevention of Influenza. Longmans & Co., Lond., 1891.

A. G. Auld, M.D.,—The Pathological History of Bronchial Affections, Pneumonia, and Fibroid Pneumonia. J. &. A. Churchill, Lond., 1891.

T. Borthwick, M.D.,—A Contribution to the Demography of South Australia. Baillière, Tindall, & Cox, Lond., 1891.

T. Buzzard, M.D.,—On the Simulation of Hysteria by Organic Disease of the Nervous System. J. & A. Churchill, Lond., 1891.

Chas. Creighton, M.A., M.D.,—A History of Epidemics in Britain. Cambridge, 1891.

Wm. Dale, M.D.,—Inherited Consumption and its Remedial Management. H. K. Lewis, Lond., 1891.

W. H. Dickinson, M.D.,—The Harveian Oration on Harvey in Ancient and Modern Medicine. Longmans, Green, & Co., Lond., 1891.

J. B. Hellier, M.D., etc.,—Notes on Gynæcological Nursing. J. & A. Churchill, Lond., 1891.

G. E. Herman, M.B.,—First Lines in Midwifery. Cassell & Co., London, 1891.

B. C. Hirst, M.D., and G. A. Piersol, M.D.,—Human Monstrosities, Part I. Lea Brothers & Co., Philadelphia, 1891.

Johns Hopkins Hospital Reports. Baltimore, 1891.

R. S. Huidekoper, M.D.,—Age of the Domestic Animals. F. A. Davis, Philadelphia, 1891.

Index-Catalogue of the Library of the Surgeon-General's Office, U.S. Army. Washington, 1891.

P. M'Bride, M.D., etc.,—Diseases of the Throat, Nose, and Ear. Young J. Pentland, Edin., 1892.

A. S. Morton, M.B.,—Refraction of the Eye: its Diagnosis and its Correction of its Errors. H. K. Lewis, Lond., 1891.

H. Nissen,—A.B.C. of the Swedish System of Educational Gymnastics. F. A. Davis, Philadelphia, 1891.

Dr A. Politzer,—The Anatomical and Histological Dissection of the Human Ear. Baillière, Tindall, & Cox, London, 1891.

S. O. L. Potter, M.D.,—Handbook of Materia Medica, Pharmacy, and Therapeutics. P. Blakiston, Son, & Co., Philadelphia, 1891.

Dr T. Puschmann,—A History of Medical Education. H. K. Lewis, London, 1891.

Wm. Rose, M.B., etc.,—Harelip and Cleft Palate. H. K. Lewis, Lond., 1891.

Alex. Scott, M.A., D.Sc.,—An Introduction to Chemical Theory. A. & C. Black, Lond., 1891.

J. G. Smith, M.A., F.R.S.E.,—Abdominal Surgery. J. & A. Churchill, Lond., 1891.

Statistical Report of the Health of the Navy for 1890. Lond., 1891.

J. Bland Sutton, F.R.C.S.,—Surgical Diseases of the Ovaries and Fallopian Tubes. Cassell & Co., Lond., 1891.

F. Treves, F.R.C.S.,—A Manual of Operative Surgery, 2 vols. Cassell & Co., Lond., 1891.

C. L. Tuckey, M.D.,—Psycho-Therapeutics. Baillière, Tindall, & Cox, Lond., 1891.

# Part First.

## ORIGINAL COMMUNICATIONS.

## I.—THE DISORDERS OF SPEECH.

By JOHN WYLLIE, M.D., F.R.C.P.E., Lecturer on Medicine in the Edinburgh School; one of the Ordinary Physicians to the Royal Infirmary, Edinburgh.

(*Continued from page* 604.)

### PART II.—THE DEVELOPMENT OF SPEECH; AND THE DEVELOPMENTAL DERANGEMENTS—*Continued.*

### 2. *The Three Functions of the Voice. Speech of Idiots and Imbeciles.*

IT will probably contribute to clearness of description if, before entering upon the consideration of the Developmental Disorders of Speech, I make, in the first instance, an endeavour to lay before the reader, in brief, some of the main facts regarding the Normal Development of Speech that were discussed, at some length, in the last paper. This, I think, may be done most simply, if we concentrate attention specially upon the production of Voice, and try to realize the various functions that are, one after another, assumed by the Voice in the course of development.

#### *The Three Functions of the Voice.*

1. *An Exercise for the Lungs and Respiratory Muscles.*—The crying of a new-born child cannot properly be described as its method of expressing emotion. At this early period of its existence, there is probably no emotion to be expressed. The nerve force which first calls the crying muscles into action, has, in all probability, been furnished, not by the brain at all, but by the Spinal Cord, or, to be more precise, by the Medulla Oblongata. Even anencephalous children, if alive, will cry at birth, although they may be possessed of no trace of brain texture. The purposes of Nature, in thus calling the Vocal Mechanism into action so early in life, seem capable of easy explanation. It seems certain that the increased air-pressure put upon the lungs by the strain of crying must, immediately after birth, play a very important part in opening up the air vesicles for the entrance of air. At the same time, there can be no doubt that the act of crying affords a

means of exercising, in a beneficial way, all the muscles of the Respiratory System. It must tend to strengthen these muscles, much in the same way as, in after years, the muscles of the limbs will be strengthened by exercise or by gymnastics. Crying, laughing, singing, shouting and talking, practised freely by young children, are generally believed to be good tonics for the lungs; and it is entirely in harmony with this belief to find that deaf-mutes, who cannot talk, and who otherwise use their voices much less than normal children, are believed by many to have weak chests, and to be specially prone to chest affections. It would appear, further, in regard to deaf-mutes, that they derive benefit to their general health, and especially to their Respiratory Organs, from being taught to speak by the modern "oral method," which calls their vocal organs and respiratory muscles into play in the ordinary way, as in the speech of others. This tonic function of vocalization, especially important as it is to the health of the child during the first days and weeks of its life, when crying is its leading form of exercise, probably retains something of the same kind of tonic influence on the Respiratory Organs in after years, when vocalization is practised in other ways. The free use of the voice is probably an important tonic to the whole Respiratory System throughout the years of growth and development; and even in later years something of the same utility cannot reasonably be denied it. Thus we may conclude that, before the voice is used at all as a means of expressing either emotion or thought, it is used automatically as a means of exercising the lungs and the muscles of respiration; and that, even after the voice has become the chief expressive instrument of the mind, its exercise still continues, throughout life, to have something of its old tonic effect upon the Respiratory System generally.

2. *A Means of Expressing Emotion.*—Very soon, however,—even so early as a few days or weeks after birth,—the function of voice-production begins to fall more and more under the sway of the Cerebrum. The Sensorium has, in the meantime, been receiving many forms of stimulation from without, and is beginning to awake. It has been receiving impressions of many kinds, which have been poured in upon it through the organs of special sense and cutaneous sensibility. Light has begun to form images on the Retina; sounds have been falling upon the ear; the other organs of special sense have been transmitting their various forms of sensation; the cutaneous sensibility has become more and more developed; and visceral sensations have been experienced, in connexion with the condition of the digestive and other internal organs. It is one of the far-reaching laws of Nature, that the child soon experiences pleasure or pain from the various sensations thus produced; and, further, that the sensations which give it pleasure are for the most part produced by causes favourable to health, whereas those giving pain are for the

most part produced by causes that are really hurtful. These sensations of pleasure and of pain may be regarded as the first-developed and the most rudimentary forms of emotion. It has been appointed by Nature, that the child is no sooner capable of experiencing them than it is capable also of expressing them to others. They find their natural expression in the language of vocal tone, facial expression, and bodily gesture. Here then is a Second Function that is subserved by voice-production: the function of Expressing Emotion. How early the voice assumes this function, and how rapidly it acquires power in the performance of it, has been illustrated in the last paper. Crying soon becomes wonderfully expressive: the shedding of tears converts it into pathetic weeping; and soon, as Preyer points out, "by screaming, wailing, whimpering, and weeping, moods of grief, desire, hunger, wilfulness and fear are made easily intelligible." Crying thus gives expression to emotions of a more or less painful character; and with crying are closely associated the equally expressive movements of the features that form almost an integral part of the act. The pleasurable emotions find no less eloquent expression in the vocal cachinnations of laughter, and in the facial expression which is united with these. Crying and laughter are as strongly contrasted in their sounds as they are in the emotions they so efficiently express: no two sounds could be more different than the wailing cadences of weeping, and the merry, ringing, broken notes of laughter. Grunting, as shown in the last paper, is another mode of inarticulate expression that is sometimes used by children. Sighing, groaning, and sobbing, are also sounds of a highly expressive character that are partly vocal.

Further, in Ordinary Speech and in Public Speaking, the "emotional colour," as we term it, depends very largely upon the tones of the voice,—emphasized as these are by associated facial expression and bodily gesture. The mind of the listener gathers something from the words uttered, and something from the tone and manner of their utterance. A child can interpret the tone and manner, long before he is able to understand the meaning, of the words addressed to him. We have seen, in the last paper, how early children respond to smiling utterances, and how they may be brought to the point of weeping when others pretend to weep in their presence. Many of the domestic animals share with man this power of using and interpreting the language of vocal tone, facial expression, etc. The dog, for example, is a master of an inarticulate language of tone and gesture, which is closely allied to that of man himself; and though he may be able to interpret but few of the words addressed to him by his master, he is always most keenly alive to the interpretation of the vocal tone in which they are uttered, and of the expression and gestures that are associated with them. Whilst the expressive power of vocal tone is constantly exhibited even in the ordinary conversation of every-day life, we must observe its effect in the public speaking of a powerful orator, if we wish to estimate to the full the power of expression that can be embodied in the tones of the human voice. We all know with what burning effect the words of such an orator can be made to penetrate the minds of the audience, and with what wonderful power he can sway their emotions at his will.

Lastly, what shall we say of song? It is another form of expressive and highly emotional vocalization, not second in its power even to oratory; and it may therefore be placed in the same category. Yet there is something special in song which entitles it to be placed apart from all other forms of expressional vocalization. For its exercise, and even for its enjoyment, it demands the possession of a special faculty, which we call "a musical ear;" whose most essential feature seems to be the power of discriminating, to a nicety, the pitch of musical notes. The development of this special faculty seems to bear no intimate relationship to the development of the other faculties of the mind. It is known that many men of genius have been utterly destitute of musical ear: and it is further known that in idiots and imbeciles the musical faculty is often well developed; the proportion of individuals with musical ear being among imbeciles almost the same as it is among the general population. That imbeciles should so often possess a good faculty for music alongside of other faculties so poorly developed, is a very striking fact, which I hope to illustrate further in the course of this paper.

Thus, in many ways, this Second Function of the voice, that of expressing emotion, is exhibited throughout life. The power and variety of its expressiveness gradually increase during the years of growth and development, from the very early period when the voice first begins to express emotion in the acts of crying and laughing. Even ordinary individuals, in the ordinary course of development, attain to great efficiency in expressing their emotions. In a few exceptional cases, the highest levels of expressiveness are attained: when art and native genius combine to confer upon individuals the gift of song or of telling oratory.

3. *Acting with Oral Articulation, it forms Words.*—In the course of development, the Third Function assumed by the Voice is to take part with the Oral Articulative Mechanism in the production of those complicated and varied sounds that we know as Articulate Words; and thus become the instrument of Thought. How the two mechanisms, Vocal and Oral Articulative, work together in producing Articulate Words, has been pretty fully illustrated in the former papers of this series. In the first paper, in connexion with the study of stammering, it was shown how delicately the two mechanisms are co-ordinated one with the other in the production of speech; and in the second paper, in connexion with the study of Hysterical Mutism, it was shown how complete dumbness may result from the paralysis of either the one

mechanism or the other. The vocal element of Speech is supplied in short tones, broken up almost as much as the cachinnations of laughter, but differing from these in their much less regular duration and much more varied pitch and intonation. How these vocal tones of the larynx are, in speech, fitted or dovetailed into the other sounds that are produced within the mouth by the Oral Articulative Mechanism, and how the two mechanisms co-operate like the two hands of the violinist, has already been fully explained. As regards the specific value of the products of each of the two mechanisms, it is here important to remark, that whilst Emotion can, as we have seen, be expressed, in many ways, inarticulately, Thought can find its full expression only in articulate words. In the formation of these articulate words, the Oral Articulative Mechanism takes a part no less important than that taken by the Mechanism of the Voice. Further, all experience goes to show that the development of functional power in the Oral Articulative Mechanism bears, in the child, a most important relationship to the development of the intellectual faculties. The intellectual faculties form, as it were, a superstructure, built, in the course of development, upon a foundation that is made up of the primitive instincts and emotions. So it is also with the expression of thought in articulate speech. It is a new function, added to the previously existing emotional function of the voice; and it is a function which the Vocal Mechanism can assume only when it is brought into the most intimate co-ordinate relationship with the mechanism of Oral Articulation. The intellect of the child may fairly be said to be budding, when it begins, for the first time, to understand the meaning of a few spoken words; and it may be said to be gradually expanding, when this vocabulary of words that can be understood is observed to be growing from day to day and week to week. The next step is for the child himself to produce articulate words. We have seen, in the last paper, how, in the course of natural development, this step is led up to, by the instinctive and automatic exercises of the mechanisms of speech in the processes of Babbling, Crowing, and Mimic Reading. These preliminary exercises remind one of the automatic exercise of the voice before it has assumed its function of expressing emotion. Begun instinctively, and practised automatically from a very early period of life, it is curious to observe how these articulative exercises tend to assume an imitative character, and to develop into Echolalia. The child begins to catch up sounds of words that have just been uttered by others, and to repeat these mechanically, as mere sound imitations, without in the least attempting to decipher their meaning. It is about this time that the great step in advance is taken. The child has already learned to understand the meaning of a few words, and perhaps has reproduced some of these by echolalia; but now for the first time he begins to produce these words not as mere echoes of sounds, but as words with definite signification; or, being asked to pronounce a certain word, he attempts to do so by a distinct effort of his will. These are the real beginnings of speech-production. The words hitherto produced by echolalia have been evolved with almost no exercise of attention or effort of the will. But now the leading feature of word-production is that the requisite movements of articulation are produced under careful supervision of the attention, and by a distinct effort of the will. A new agent, namely, the higher Intellectual Consciousness, is thus beginning to interfere with the operations of the Speech-centres. Ultimately this new agent will take almost entire command of Speech-production. At this early stage, however, it has not yet acquired complete command; and it can get the Speech-producing centres to produce only the simplest words, and only after many futile attempts and much persevering practice. I hope, at a future time, in connexion especially with Aphasia, to discuss at greater length the mutual relationships of the Speech-centres and the higher consciousness. At present, I shall ask the reader's attention only to two facts:—(1.) That the speech-mechanisms are formed upon the Reflex Plan, with a sensory or receptive, and a motor or productive side, between which there are connecting fibres, by which influences can travel forwards from the sensory to the motor centres, so that sounds heard by means of the receptive centre may, in echolalia, be imitated mechanically by the motor. (2.) That with the development of the ruling faculties of the nervous system—namely, the intelligence and the will,—command is taken by these faculties of the reflex mechanism of Speech. Sounds formerly meaningless to the child are now interpreted as words with definite meaning; and soon, with ever increasing success, the productive side of the mechanism is compelled to reproduce these words by effort of the will.

Something has already, in the last paper, been said as to the order of difficulty experienced by the child in the voluntary production of the various vowels and consonants. It may here be repeated that the vowels are more easily produced than the consonants. The middle vowels, such as **o** and **a**, are the easiest of all; and the vowels at the two extremities of the list, viz., **i** (**ee**) and **u** (**oo**) are somewhat more difficult, apparently because their production involves a little more muscular effort. Of the consonants, it has already been shown that the three produced during complete closure of the first stop-position, viz., **p**, **b**, and **m**, are generally the first to be learned; but that almost as early as these in making their appearance are the corresponding three consonants produced during the closure of the second stop-position, viz., **t**, **d**, and **n**. Thus the syllables **pa**, **ba**, and **ma**, **ta**, **da**, and **na**, are usually the first that the child learns to pronounce. The consonants produced during closure of the third stop-position, viz., **k**, **g**, and **ng**, are later in appearing; and their appearance may be delayed for months, or even for years. As to the fricative consonants, it has already, in the last paper, been pointed out that "those which most frequently present difficulties to the child are probably **r** and **l**, and, in a less degree, **sh**, **s**, **ch**, and **y**." Another matter which was commented upon in the last paper was the "Smudging" or Scamping of the syllables in baby-speech. "The child simply omits the consonants difficult to him, sometimes putting nothing in their stead, and sometimes substituting for them others that he can pronounce without effort. He thus converts double consonants into single ones. Often he reduces a syllable to such simplicity that the listener can only guess at its intention from the sound of the vowel." When this Scamping articulation is but slightly marked, it is perhaps best described by the term Slurring or Thickness of Speech. A single consonant perhaps is omitted, or is imperfectly produced during the pronunciation of a difficult syllable. The most typical example of such slurring is perhaps met with, not in baby-speech, but in the slovenly articulation of a person somewhat inebriated, who, as is known, is apt to pronounce "British Constitution" as "*Brizh Conshishushon.*" A child who lalled slightly might possibly pronounce the words in a somewhat similar way; but if lalling were strongly pronounced, he would be more likely to give them as "*Bitte Tontitu,*" and this would be an example of scamping rather than of slurring.[1] These various forms of imperfect articulation, existing together, go to make up the variety of imperfect speech known as Lalling, a very useful term which has been applied to the imperfect utterances of baby-speech. Lalling is natural in every child at a certain period of its life. But in healthy children it passes away as the child, by efforts of attention and intelligent practice, gradually masters its difficulties of articulation. Lalling is, I think, much the best term for these imperfect performances of the Oral Articulative Mechanism; and when the above defects exist in combination, as they always do at a certain stage of baby-speech, the term is very specially appropriate. I also think it is justifiable to use it as a general term that may be applied even to cases where the above defects exist singly; and in this paper I propose so to use it. In Germany, these defects of Oral Articulation have been treated of under the general term Stammering (Stammeln).[2] I have already, in the first paper, protested against the use of the English word

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[1] We speak of a man "Scamping" his work when he performs it in a slovenly way, and takes as little trouble with it as possible. By some authors babies are said to "truncate" their words; and this is true enough: but they may omit consonants at the beginning and middle as well as at the end of a word; so that I think "Scamping" is preferable, as the descriptive term. Perhaps it is something of a "slang" word, but it is the most expressive I can think of.

[2] In Germany, the term lalling (lallen) is apparently applied to the imperfect utterances of baby-speech only when these are so inarticulate as to be almost or altogether unintelligible; Lalling being described as an extreme development of "Stammering" (Stammeln). See article "Stottern," by R. Arndt, in Eulenburg's *Real Encyclopädie*, vol. xix., p. 173.

Stammering in this sense. In this country, the word thus used would be altogether misapplied; since, when we speak of Stammering, we always think of an element of hesitancy in the Speech. In these Oral Articulative defects, however, there is not necessarily any hesitancy: the words may be emitted with apparent ease, although the syllabic articulation is so imperfectly performed. It should, at the same time, be remembered that in its first efforts to speak the utterances of the child are often emitted very deliberately, and with much apparent effort. It should be noted also, that true Stammering, with Stuttering, very frequently appears, as a passing phenomenon, even in normal children. It is, further, most important to make note of the fact that in imbecile children this true Stammering or Stuttering, due to want of promptitude in the Vocal Mechanism, is often found associated with Lalling, due, as we have just seen, not to want of promptitude, but to want of precision in the performance of the Oral Articulative Mechanism. Lastly, the reader will remember that "Words of its own Invention" are employed, more or less, by almost every normal child, when true speech-production begins to be developed. In normal children, these words are, with the further growth of Speech-power, soon disused and forgotten. We shall find that in imbeciles similar words are often invented, but that, in them, they are not speedily forgotten,—being retained as elements of Speech throughout life.

These then are the three functions that are fulfilled by the exercise of the Voice: (1.) It is a healthy exercise for the Respiratory Organs; (2.) In association with facial expression and gesture, it is an instrument for the expression of emotion; (3.) In close association with Oral Articulation, it is the chief instrument for the expression of thought.

### *Defects of Speech in Idiots and Imbeciles.*

"Idiocy," says Dr Ireland,[1] "in its mental manifestations at least, may be viewed as a fixed infantile condition. Idiots remain all their lives children in intellect, often so in their feelings and desires. Of course there is always this difference between an idiot and another child, that, although at a given time the potential intellect of the one is no greater than that of the other, the idiot has the benefit of a larger experience." In estimating the degree of mental imbecility, and thus forming a practical classification of idiots and imbeciles according to the depth of their imbecility, many great authorities are agreed in thinking that there can be no better guide than an examination of the patient with special reference to the function of Speech. Griesinger[2] says,—"The relations of Speech are so interwoven with the whole process of mental development, and so necessary to education and intellectual advancement, that the classification of idiots according to their capability of speaking (generally into three degrees), is one of the best that can be established." Esquirol[1] has divided idiots and imbeciles into five classes, of which the lowest is utterly mindless and speechless, and the highest has a free and easy utterance, though a defective power of reasoning. I propose to give presently short notes of a series of cases which represent such a gradation of intellect and of Speech-power as is indicated by Esquirol; and I hope that these cases will bring very prominently before the reader's mind the permanent infancy, alike of the imbecile intellect and of the imbecile speech. We shall find in these notes all the peculiarities of infantile speech reproduced; and the cases will represent stages in the development of a normal child, mounting upwards from that total absence of faculty which is proper to the child newly born, to a level not far removed from the intellectual capacity and speech-power of an ordinary adult. Some of the cases to be described were seen by me at the Morningside Asylum. For opportunities of studying these, I have to thank Dr Clouston. In making notes of them, I was kindly aided by one of his assistants, Dr Middlemas, formerly my own house-physician. Some of the other cases were studied by me at the National Institution for Imbecile Children at Larbert; and for the privilege of making notes of these, I have to thank Dr Leslie of Falkirk, the Visiting Physician, and Mr Skene, the Resident Superintendent. My former house-physician, Dr A. S. Duncan, assisted me in taking notes of the Larbert cases. In all, I have before me notes of about twenty selected cases, all of which present points of special interest; but considerations of space forbid me to insert more than a limited number of the cases. Unfortunately I have, among them, no example of the very lowest depth of idiocy. To supply this defect, I shall give, as the first case, a brief note as to such a patient extracted from the valuable work of Dr Ireland. The rest of the cases will be from my own notes.

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[1] *On Idiocy and Imbecility*, by William W. Ireland, M.D., 1877, p. 264.

[2] *Mental Pathology and Therapeutics*, New Sydenham Society, 1867, p. 370.

CASE I.—(*Dr Ireland, p.* 267.) *Intelligence and Speech nil.*—"I have seen an idiot seven years old who only swallowed food when placed on the back of the tongue within reach of the reflex actions of the Pharynx. He was kept tied in a chair, for, although unable to design any motion, he would sometimes make involuntary bounds, which would throw him on the floor."

CASE II.—(*Larbert Institution.*) *Only one word understood. Babbling.*—A lad of eighteen, slender and rather short; constantly walking about in shambling fashion with head much bent forwards; always smiling and laughing quietly to himself and to others. Never cries nor sheds tears; never blushes; good-natured and affectionate, but very stupid; utterly helpless as to evacuations and as to dressing himself. When his chair is set at table, knows to sit down upon it, and can use a spoon at meals. Understands no word but his own name, "Johnnie," which he answers to by coming when called. He, however, responds readily to smiles and kindness. Often amuses himself by "babbling" the single syllable *mamamama* for a long time. Produces no single intelligent word. Nurse says that he has a good ear, seems to like music, and sometimes hums over a polka he has often heard played.

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[1] *Traite des malad. ment.*, t. ii. p. 288.

CASE III.—(*Larbert Institution.*) *Responds to his own name, and calls out name of cat. No other language. Echolalia well marked. Grunting.*—A boy, aged twelve; short, but not deformed; vacant, sometimes puzzled, expression; very stupid; sometimes inattentive as to evacuations; cannot dress himself, but can feed himself at table. Is affectionate, responding readily to smiles and kindness; gets excited when petted, grinning and working arms up and down; cries sometimes, and sheds tears; has "roaring tempers," during which he tears his collars; has turns of laughing aloud. Grunts to himself a good deal; shows marked Echolalia, repeating "Lizzie," when he hears any one call for the nurse, and repeating in similar fashion the name of any boy when it is shouted by another. Understands nothing but his own name; and the only intelligible word employed by him is, "pussy, pussy," which he addresses to the cat. Has no musical ear, and never sings.

CASE IV.—(*Larbert Institution.*) *Understands only his name. No other words understood; no words produced except in Echolalia and in Song.*—Boy, aged thirteen; subject to fits; well-made; walks quite well; is very restless. Has fits of laughing, also of passionate roaring; is sensitive, and easily made to cry and shed tears; responds readily to smiles and kindness. Understands no word but his own name; and can produce no words except by Echolalia, or in song. Repeats by Echolalia any name that is called out in the Day-room. Nurse states that he has an excellent musical ear, and that he often sings hymns to himself when in bed, or sitting in the Day-room, the words being—though this seems almost incredible—pronounced quite correctly.

CASE V.—(*Larbert Institution.*) *Patient able to understand much of what is said, but not able to produce any speech whatever.*—A girl, aged sixteen; short stature, rickety legs, large head, prominent forehead. Remarkably silent and sedentary; occupies herself chiefly in scraping up wood fibre of her chair with her nails. Does not play with other children, and when among them is apt to pinch them severely. Is very cleanly as to evacuations. Feeds herself at table with knife, fork, and spoon; but cannot dress herself. Nurse says that she understands almost everything that is said to her. Never utters a single word; seldom makes any gesture, or shows emotion; but on one occasion, when nurse hurt her finger, patient suddenly showed sympathy by kissing her and crying. The only sound she gives vent to is an occasional broken cry.

CASE VI.—(*Larbert Institution.*) *Understands speech well, and can speak a little, but in speaking lalls very markedly.*—A boy, aged eight; small and bandy-legged; head very narrow in front and broad behind. Is very active, restless, and mischievous; is fond of catching insects, especially "clockers." Smiling, impish expression of countenance. Talks a good deal, especially to himself; but articulation so imperfect that scarcely anything he says can be made out. The following is his pronunciation of the numerals, when he is made to repeat them to dictation one after the other. "**One, foo, chree, four, fia, hik, seggen, eight, nine, ten, evven.**" Understands not only gestures, etc., but also spoken words; bringing chairs, etc., when asked to do so.

CASE VII.—(*Larbert Institution.*) *Well-marked Echolalia. Understands Spoken Language. Speaks a good deal, but lalls. Has a special talent.*—A girl, aged thirteen; good figure; pleasant face, though rather dreamy expression. Imbecility dates from occurrence of Meningitis at three. When first brought to Institution, showed marked Echolalia; repeating several times "Maggie, Maggie," when her name was called out. If anyone said "Maggie, sit down," she would repeat the whole sentence several times over. Is very cleanly, and is able to dress and feed herself, but puts everything to her nose and smells it before putting it to her mouth. Used to be destructive of her dress, but on being beautifully dressed took a pleasure in her appearance, and gave up tearing her dress. Understands all that is said to her; bringing chairs, etc., to order. Is very affectionate, and responds readily to smiles and kindness. In speaking, drawls her syllables, and pronounces them with marked lalling:—thus, for the numerals dictated to her one by one, she gives, "**One, two, free, four, fie, six, sim, eight, nine, ten, evven, el.**" Is remarkably neat handed, her sewing being really beautiful. No musical ear.

CASE VIII.—(*Morningside Asylum.*) *Understands a little Speech. Uses a few words, some of them being "Words of her own Invention." Language of Facial Expression and Gesture very well marked.*—A young woman, aged twenty-three; fairly well grown; rather lively expression, though obviously silly. Cries sometimes, shedding tears when hurt. Laughs and smiles readily. When pleased, grunts to herself in a characteristic way. Exhibits rage, fear, etc., well in facial expression. When sulky, pouts, making a true "snout" with her lips. Never blushes. Uses gestures, largely indicating her wishes in this way. Understands simple directions quite readily, and does what she is told. The following is a list of the words which she makes use of; and it will be observed that some of these are Words of her own Invention:—**Aye** for yes.

When wanting to attract attention she often repeats **Aye** several times. **No** for negation, though she often shakes her head for this. **Tucka—tucka** is her name for herself. **Pia** she uses when she wants anything, and wishes to attract the nurse's attention. **Papia** when she wishes to go to the bath-room. **M-m-m-mia** when she wants food, or wants her hat to go out. **Puttyka** is for pussy cat. **Yahoo** is an apparently meaningless expression, often uttered when she is pleased. **Beh** when she is playing with something, and is pleased—she still plays with dolls. Cannot be got to repeat the numerals to dictation. Sometimes sings to herself part of a dance tune, the notes being given pretty correctly.

CASE IX.—(*Morningside Asylum.*) *Understands Speech fairly well; but in speaking lalls, lisps, and stammers.*—A young woman, aged about twenty; paralyzed on right side. Intelligence so good that in most respects she behaves like a grown-up person. Laughs readily, but seldom or never cries. In speaking, sometimes uses T for K, D for G, Th for S or Sh, and D for Z or Zh. She stammers over the explosives, and when words begin with explosives she often tries to overcome the difficulty by means of "drawback phonation." Gives the numerals as:—**E-one, T-oo, Theree, Four, Five, Ishish, Theven, Eight, Nine, Ten.**

CASE X.—(*Larbert Institution.*) *Intelligence considerable. Understands Speech. No babbling, Echolalia, or pronounced lalling; but slurs slightly.*—Boy, aged eleven; well made; rather small; good head and face. Is cleanly, and is able to dress himself. No fits of crying unless when meddled with; but is hot-tempered. Laughs freely; blushes occasionally. No babbling or Echolalia. Understands Speech, obeying commands readily. Gives the numerals himself continuously, but omits 17 and 18 in naming them up to 20. Says $2+2=3$. Slight slurring when he speaks; but no pronounced lalling. Sings in correct tune; but words are mixed up.

CASE XI.—(*Larbert Institution.*) *Intelligence now almost normal; Speech very good; excellent musical ear; sings admirably.*—A girl, aged twelve; rather short, but well made; pretty face, fine eyes and teeth, but deformed palate. Expression dreamy. Very affectionate; is of happy disposition and pleasant manners. Likes to work and help the nurse. Talks exceedingly well, and has good memory for words, repeating each test sentence as a whole when it is spoken to her. Sings remarkably well, having a good voice and ear. In singing the song called "The Cobbler," performs appropriate actions with much vivacity. Is the leader of the other children when they sing together.

This girl has improved remarkably since she was brought to the Institution eight years ago. She then spoke incoherently, and was passionate and mischievous. The only thing about her at present, indicative to a stranger, of anything unusual in her mental constitution is her decidedly dreamy expression.

One of the most memorable incidents connected with the pleasant and instructive day which I spent, some months ago, in the Larbert Institution, was the singing of the children, under the leadership of the patient whose case has been last described. The Superintendent having kindly asked them to sing to us, they sang a number of hymns, very tastefully and tunefully. In visiting this beautiful and admirable Institution, one could not help feeling how much happier and healthier the children evidently are, carefully tended and educated, and living partly in the society of others like themselves, than they could, in most cases, possibly have been in private homes, where, if they are among other children, there is often so much to vex and humble them, and where they cannot have the advantage of being educated by teachers experienced in the education of children of weak intellect.

The above eleven cases have, as far as possible, been given in an ascending scale, from mental zero up to a level of intelligence and speech-capacity little removed from that of a normal individual. It is hoped that the cases bring out with sufficient clearness—(1), that Lalling is the leading defect in the speech of imbeciles; (2), that stammering is occasionally associated with it; (3), that in the lower grades of imbecility, babbling, grunting, echolalia, and the use of "Words of their own Invention," are met with in association with conditions of mental development closely corresponding to the conditions with which they are associated in the development of normal children. Thus Dr Ireland's axiom, that "Idiocy, in its mental manifestations at least, may be viewed as a fixed infantile condition," is illustrated at every point, when one examines into the powers of interpreting and of producing speech presented by any well-marked case of mental imbecility.

Dr Ireland, who was formerly Physician of the Larbert Institution, informs us (p. 263) that for purposes of education he used to divide the pupils in the Institution into five grades.

"I. Comprising those who can neither speak nor understand speech.
"II. Those who can understand a few easy words.
"III. Those who can speak, and can be taught to work.
"IV. Those who can be taught to read and write.
"V. Those who can read books for themselves."

He found that "most cases can be put under one or other of these classes. Where there is difficulty it is generally with the third class, for some can speak who cannot be taught to work, though very few."

(*To be continued.*)

## II.—NOTE ON A CASE OF VAGINAL HYSTERECTOMY FOR CARCINOMA CERVICIS IN EARLY PREGNANCY.

By D. BERRY HART, M.D., F.R.C.P.E., F.R.S.E., etc.

(*Read before the Obstetrical Society of Edinburgh, 11th November* 1891.)

THE rarity of this combination has induced me to contribute this short note. So far as I am aware, only one similar case treated by radical operation has been recorded in this country, although Hofmeier and Landau have published cases abroad.

The patient whose case I wish briefly to narrate was sent to the Infirmary on August 25, 1891, by Dr Wilson of Mid-Calder. She was a married woman aged 33, and had three months before admission a flooding at a menstrual period, with a bloody discharge for two months afterwards, and an offensive one during the month prior to admission. The rest of her history is of no special moment. On physical examination under chloroform the cervix was found enlarged, fungating, and breaking down; parametrium quite free; uterus enlarged somewhat, softened, and perfectly mobile.

There was no doubt about the cervical condition; almost none about the pregnancy; and as it was evident that it was a favourable case for radical treatment, I had no hesitation in recommending total extirpation strongly. Supra-vaginal amputation of the cervix was in my opinion contraindicated by the pregnancy, as the probability of bringing on immediate abortion seemed to me to render it inadvisable in this instance. Winter of Berlin has, however, in a recent paper on Schroeder's supra-vaginal amputations for cancer of the portio, given a case where the entire cervix was amputated in the second month of pregnancy, abortion following at the fourth month. The patient recovered, and was delivered of a living, full-time child three years afterwards, and six years after operation had no return of disease.

On September 3, I performed vaginal hysterectomy with the aid of my friend Dr J. C. Webster. I need only sketch the method I adopted, as the operative details are now well known. After careful local disinfection, the cervix was grasped with a volsella and brought well down and forwards. I then made a transverse incision in the posterior fornix a little above the cervical junction, opened the pouch of Douglas, and sutured the peritoneum and cut vaginal edge with juniper catgut. The cervix was then brought well back, the vesico-uterine pouch cut into, and the peritoneum and vaginal wall also sutured with catgut. The lateral attachments were then severed from below up as follows:—With a curved handled needle, a stout silk ligature was passed and tied, so as to command the lower portion of the parametric tissue. This ligatured portion was then cut with scissors on the uterine side, the separation of course stopping short of the uppermost part commanded by the ligature. Another ligature was then passed higher up, and the tissue similarly severed until the parametrium and lower half of the left broad ligament were freed from the uterus. I then began on the right side, and in a similar way ligatured and separated the parametric tissue and broad ligament. This allowed the uterus to be drawn outside entirely, and the upper portion of the left broad ligament to be easily ligatured and cut. The uterus now being removed, traction on the ligatures, which had been left long, enabled me to draw down the broad ligaments and carefully inspect them. All the ligatures had held perfectly, but one oozing point at the base of the right broad ligament required an additional ligature. The inner aspects of the broad ligaments were then brought together with a catgut suture, and the vagina lightly packed with iodoform gauze. Less than a tablespoonful of blood was lost.

The patient made a good recovery, the pulse never rising above 100. When the ligatures were separating, the temperature ran up to 104° and even 105°, but fell whenever Dr Webster removed them. As yet the patient is well, but one can say nothing, of course, as to the prognosis.

I have thought it of advantage to record this case owing to its rarity. Unfortunately, cancer cases come to the specialist late in this country, but I hope that with increased knowledge on the part of the profession as well as of women themselves, we may see them early enough for operative interference.

Dr Gulland, who examined the specimen, reported as follows:—"The uterus was opened in the middle line posteriorly, and fixed in saturated solution of corrosive sublimate. The measurements were: longitudinally, from fundus to the normal os externum, $3\frac{1}{2}$ inches; cavity of uterus and cervix, 3 inches; external circumference about $1\frac{1}{2}$ inches below the fundus, 8 inches; the amniotic cavity was about $1\frac{1}{2} \times \frac{3}{4} \times \frac{3}{4}$ inches, and the cervix was about $1\frac{1}{4}$ inches long. The placenta was situated at the fundus and on the posterior wall of the uterus.

"Growing from about $\frac{2}{3}$ of the circumference of the vaginal aspect of the cervix, and springing mainly from the anterior lip, was a tumour of about the size of a hen's egg, of the 'cauliflower excrescence' variety. This joined the normal part of the cervix all round at an acute angle, and was separated from it by a deep groove, except in the cervical canal, where the transition was not marked in this way. In the canal about $\frac{2}{3}$ of an inch of the cervix seemed free from the tumour, but the amount of normal tissue varied considerably at different points, and was less in the fornix than in the cervical canal. After hardening, the tumour could pretty easily be distinguished from the normal tissue of the cervix, and as far as could be made out from the specimen, all the diseased tissue seemed to be removed. Microscopically the tumour presents the characters of a carcinoma derived from the vaginal aspect of the cervix; and it is found to correspond in its distribution pretty nearly to what one expects from examining the specimen with the naked eye. It is more of an outgrowth from the cervix than an ingrowth into it, though the epithelial tubes or processes forming it do, of course, pass for some distance up into the cervical tissue proper, and on the mucous surface the tumour growth overlaps to some extent the normal mucous membrane.

"The tumour proper consists of large epithelial cells, resembling those normally seen on the vaginal aspect of the cervix, but larger. The outlines of the cells are very distinct, but there are no such processes as in the 'prickle-cells' of the vaginal epithelium. Towards the vaginal surface the cells are polygonal on section, but they never become flattened into squames except at the very surface, whilst at the inner end of the processes invading the cervical tissue the basal cells are somewhat more cubical. Some of these invading processes are hollow, and in their lumen lie masses of leucocytes which have wandered thither between the cancer cells; others are solid, but there is no attempt to form cell-nests. The nuclei of the cancer cells are large, rounded, and contain little chromoplasm. Large numbers of the cells are multiplying by mitosis, and I have in several cases noted the irregular triple mitotic forms which Hansemann has described in cancer cells. One rarely meets degenerated nuclei except where the tumour has ulcerated. The stroma of the cancer consists of a very vascular connective tissue, whose arrangement is like that of the reticulum of adenoid tissue, and whose meshes are packed with leucocytes in all stages of growth, of reproduction by mitosis, and of decay. These are most numerous near the tumour processes, and there are almost exclusively of the variety whose granules stain with eosin. I examined a section stained by Dr W. Russell's method, and found that the basophile leucocytes, which that method demonstrates, were only present in small number. Through the normal cervical tissue are also scattered an unusually large number of leucocytes, many of which are eosinophiles. At many points on the vaginal aspect the tumour has ulcerated, and the appearances produced vary to a certain extent. Either the stroma, which, of course, closely resembles granulation tissue, and which here contains occasional large macrophages, becomes superficial, or the tumour is riddled by leucocytes which separate and destroy the cancer cells, so that appearances are produced very like those seen in the epithelium of the tonsil.

"The bloodvessels of the cervix are unusually large and numerous, and the supply to the stroma of the growth exceedingly free, though mainly effected by capillaries. There are few lymphatics in the stroma, and in the large lymphatic vessels running alongside of the cervical vessels, which contain numbers of leucocytes, mostly degenerated, I was not able to detect a single cancer cell with certainty. Nor could I see in the parts of the cervix and uterus which were examined any metastatic nodules."

Fig. 2

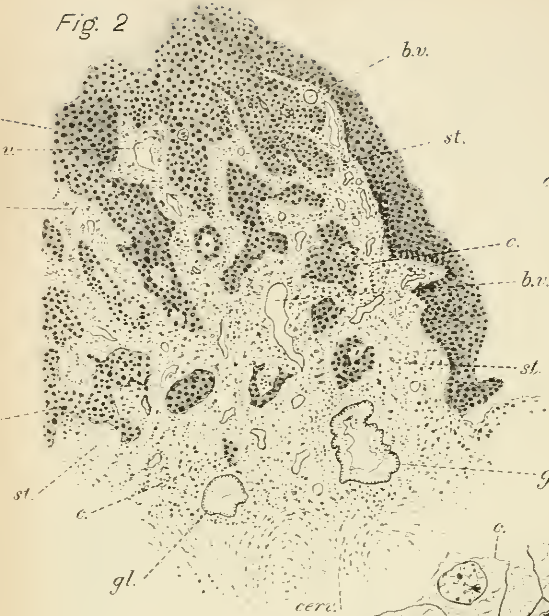


Fig. 1

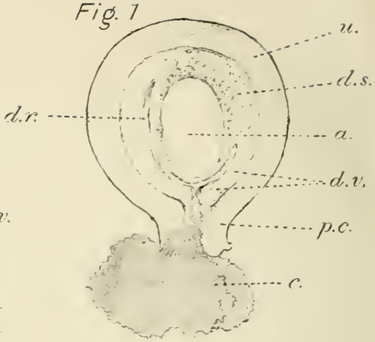


Fig. 4

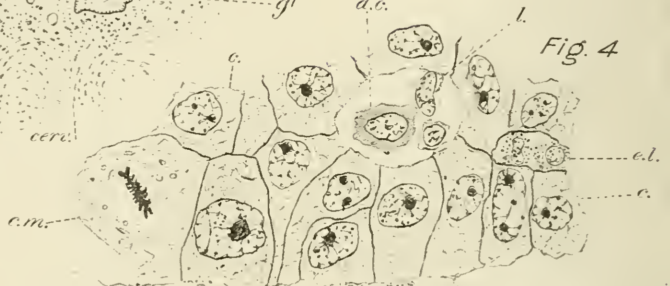


Fig. 3

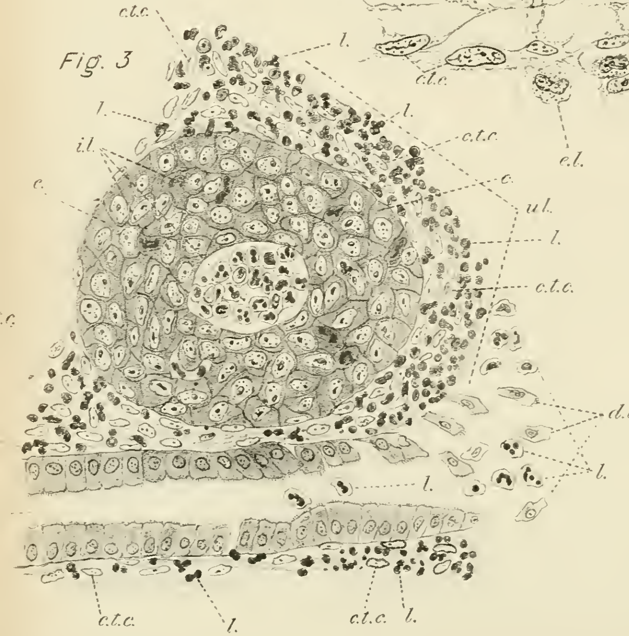
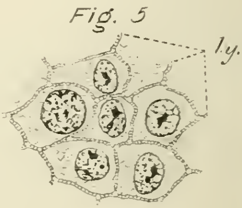


Fig. 5



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## Explanation of Plate.

Fig. 1.—Sagittal mesial section through pregnant uterus and carcinoma (semi-diagrammatic); about ⅖ of actual size. *u.*, uterine wall; *d.s.*, decidua serotina; *d.v.*, decidua vera; *d.r.*, decidua reflexa; *a.*, amniotic cavity; *p.c.*, posterior lip of cervix; *c.*, carcinoma (the shading indicates approximately the extent to which the cervix was invaded by the growth).

Fig. 2.—Margin of the carcinoma where it is invading normal cervical tissue. *c.*, processes of the carcinoma, some of which are hollow; *st.*, stroma of delicate fibrous tissue, infiltrated with leucocytes, especially near the cancer processes; *b.v.*, bloodvessels (only the larger vessels are indicated); *gl.*, normal cervical glands; *cerv.*, normal cervical tissue.

Fig. 3.—Transverse section of a cancerous process (unusually symmetrical) invading the mucous membrane of the cervical canal. Zeiss. DD. Oc. 4. *c.*, cancerous process; *ul.*, surface of mucous membrane denuded of epithelium; *l.*, leucocytes; *i.l.*, leucocytes invading the cancerous tissue, or which have passed through it; among those in the centre are a few degenerated cancer cells; *d.*, longitudinal section of the duct of a normal gland; *d.e.*, degenerated epithelial cells of the duct and surface of the mucous membrane; *c.t.c.*, connective tissue corpuscles.

Fig. 4.—Margin of a cancer process. Zeiss., Apochr. homog. imm. 2·0 mm. Comp. Oc. 4. *c.*, cancer cells (well-marked intra-cellular network, nuclei with relatively small amount of chromoplasm); *c.m.*, cancer cell in monaster stage of mitosis; *d.c.*, degenerated cancer cell; *l.*, leucocyte; *e.l.*, eosinophile leucocyte; *c.t.c.*, connective tissue corpuscle; *c.t.f.*, connective tissue fibre.

Fig. 5.—Normal epithelium from vaginal aspect of the cervix, for comparison with Fig. 4 (same obj., etc.); *ly.*, lymph-spaces between cells, traversed by so-called "prickles."

# III.—ON ECTOPIC GESTATION.

By Albert E. Morison, F.R.C.S.Ed., Hon. Visiting Medical Officer, Hartlepools Hospital.

(*Read before the Medico-Chirurgical Society of Edinburgh, 2nd December* 1890.)

The subject of Ectopic Gestation is one of such great importance that notes of some cases which have come under my care in general practice may be of interest. The following five cases I record, having all occurred during the last four years, show that this malady is much more common than is probably supposed, and that with increasing experience, cases may be diagnosed by the practitioner, and an otherwise certainly fatal issue averted by treatment.

Case I.—Mrs I., æt. 30. Mother of five children, eldest twelve; youngest three years of age. First seen by my brother on December 6th, 1887.

*History.*—She states that two years previously she had an attack of inflammation of the bowels, which, her medical adviser said, was brought on by cold during the menstrual period. This illness kept her in bed nearly three months. From that time up to two months from my first visit to her she had been well. She then menstruated normally, but had not been right since, having missed a period.

*December 6th.*—She complains of periodic attacks of pain in the lower part of the bowels, so severe as to confine her to bed.

On the 13th of December she had considerable hæmorrhagic discharge from the vagina, and this, together with the severe periodic pain and the probability of pregnancy, aroused the suspicion of commencing abortion. She would not allow any examination to be made, so it was impossible to form any accurate opinion. The discharge continued more or less severe every day. The pains got worse and more frequent, and her general health began to fail from sickness, loss of appetite, and pain. The temperature during the last week has been 100° F. in the morning, 101° in the evening. It was not till December 24th, however, that she would allow any examination to be made, when owing to her struggles and complaints, nothing very definite could be arrived at, although a soft, tender swelling was found in Douglas's pouch.

On December 28th, with the consent of her friends, she was induced to take chloroform, and the following condition of things was found:—

*Per Vaginam.*—The uterus is enlarged, cervix soft, and os patulous. Behind the uterus is the swelling discovered on previous examination to be tender on pressure. It is rounded and elastic, and extends upwards to a point midway between umbilicus and pubes. In front of it lies the uterus, the outlines of which can be clearly defined, distinct from, but closely connected with the swelling. The breasts contain colostrum, and there is a well-marked areola round the nipple. After the chloroform she was very ill with pain in the præcordial region and shortness of breath, but nothing could be found to account for this.

*29th December.*—Dr Murphy of Sunderland saw the patient in consultation. He made a further examination under chloroform and passed a uterine probe. His opinion confirmed that of my brother and myself that it was a case of extra-uterine gestation. The patient, however, was so ill, we all agreed that to operate would kill her, and decided to wait for a few days and see if any improvement in her general condition could be brought about. She improved somewhat by January 2nd, 1888, and on that day the following operation was performed:—

The abdomen was opened in the middle line under the spray. The tumour was found to be covered in front by adherent omentum.

It was adherent to the parietes below for the lower half, but, on dividing the omentum, was free above. Since our last examination the tumour had increased in size, and was now on a level with the umbilicus. On introducing the hand into the peritoneal cavity, the tumour was closely adherent in Douglas's pouch and round the pelvic brim, making it improbable, even not taking into consideration its size, that the cyst could be shelled out. Accordingly the cyst wall was incised after packing the abdominal cavity with sponges. A terrific hæmorrhage followed, which was almost at once arrested by pushing a sponge firmly into the wound. To this the patient undoubtedly owes her life. The placenta was situated over the front of the cyst, and this it was which had been incised. The sponge was left in the sac stitched to the parietes. The operation was finished by suturing the remainder of the abdominal wound, leaving a drainage tube in the peritoneal cavity. The patient appeared to be little the worse for the operation, and soon rallied.

*January 3rd.*—Dressed under the spray. The sponge was gently removed from the sac between the placenta and membranes. Bleeding at once commenced, but was arrested by plugging firmly with gauze.

4*th.*—Peritoneal drain removed.

5*th.*—Bowels moved with calomel (grs. viiss.), followed by an enema.

6*th.*—Plug of gauze removed and renewed. Very little discharge. No bleeding.

11*th.*—As the temperature since the operation has been gradually rising and the patient complains of some pain, a hypodermic needle was pushed into the sac and withdrew fluid. A director was passed along the needle, and along the groove of the director a pair of dressing forceps. By opening the forceps and withdrawing them, the opening was enlarged. About a pint and a half of blood-stained fluid, containing purulent flocculi and smelling like liquor amnii, escaped, but no fœtus. The cavity was stuffed with gauze.

25*th.*—On trying to remove a portion of placenta a sharp attack of hæmorrhage came on. Chloroform was given, the whole sac explored, and the fœtus (about two months) discovered and removed.

*February* 8*th.*—The sac has gradually closed up and the patient is well.

CASE II.—Mrs P., æt. 37. Mother of five children, eldest 18, youngest seven years of age. First seen April 9th, 1890, complaining of severe paroxysmal pain in the abdomen of two months' duration.

*History.*—She has never been well since the birth of her last child seven years ago. About a year after it was born she began to menstruate, though there never was any regular period, but at intervals of from two to six weeks a hæmorrhagic discharge. The pains of which she complains came on about two months before she consulted me.

*Present State.*—Patient presents a blanched appearance. She says she has never missed any periods, but has some feelings as if she were pregnant. Colostrum is found in both breasts.

*Per Vaginam.*—The cervix is soft and os patulous, the uterus pressed forwards by a mass, soft and fluctuating, lying in the left lateral fornix and posteriorly. Bimanually this is felt to be the size of an orange.

There is an intermittent hæmorrhagic discharge, especially marked when the pain is present.

*Diagnosis.*—Extra-uterine gestation.

I at once ordered the patient to bed and to be put on light diet, and morphia to be given for the relief of pain. At this time she would not consent to any operation, although the risk she ran was carefully explained to her.

*May* 11*th.*—Patient still continues in the same condition. Although she has been lying in bed for a month she has still the paroxysmal pain and hæmorrhage. The mass has increased considerably in size. She now consented to go into the Hospital under my care, and accordingly was admitted on May 12th. Her temperature varied from 98° to 99°·4.

*Operation, May* 17*th.*—Abdomen opened in the usual way. On passing the hand into the pelvis the mass described as felt per vaginam was reached. It was bound down by adhesions, and in separating these the tube was ruptured. The left tube was then ligatured and clipped away, and the peritoneal cavity washed out with warm boracic lotion. A tube was afterwards inserted and the abdomen closed. The tube was syringed every half hour until the peritoneal cavity was dry.

*May* 20*th.*—Tube removed. Bowels moved with calomel. Temperature at 9 P.M., 101°·6.

25*th.*—Patient very well indeed. Temperature, 98°·4.

31*st.*—Patient apparently quite well. I then went away from home for four days, and on my return found the patient dying. She had had sickness and diarrhœa for three days, probably owing to some indiscretion in diet, and nothing ordered had done her any good. She died of exhaustion on June 2nd, 1890.

The specimen removed showed the tube filled with coagulated, firmly adherent blood, but no trace of the fœtus could be found, and on microscopic examination no evidence of placental tissue was discernible.

CASE III.—Mrs G., æt. 34. Six children, youngest 3 years old. First seen on January 24th, 1891, complaining of obstruction of the bowels of four days' duration.

*History.*—Patient has been troubled with her bowels more or less for some years. About two years ago she had a similar attack to the present one. She had been ill for four days when she sent for me, with pain in the bowels and constant sickness. The bowels had not acted for five days, and then only slightly.

On examination I found her abdomen much distended, especially in the area of the colon, and tender to touch in the left iliac fossa. There is also an ill-defined resistance in this region.

*Per Rectum.*—There is an obstruction high up just within reach of the finger, which feels soft and fluctuating.

*Per Vaginam.*—A soft, fluctuating swelling about the size of a cricket ball can be felt to the left side of the uterus in the lateral fornix. The os is soft. No discharge from uterus. Being suspicious that this was an ectopic gestation, I questioned the patient carefully as to her menstrual history, but being a stupid woman, it was difficult to obtain satisfactory information on this point. She said, however, that she had always menstruated regularly and had no uterine troubles. No colostrum was found in the breasts.

I ordered an enema and ʒj. doses of magnes. sulph. every half hour till the bowels were moved. In the evening they acted, and she is much better. The sickness has somewhat abated. The swelling can still be plainly felt both per rectum and vaginam. She made satisfactory progress, still being kept strictly in bed, until February 7th, when I was sent for hurriedly at 6 P.M. She had got out of bed to stir the fire shortly before, as she was feeling so much better, when a sudden, violent pain seized her in the abdomen. She fell on the floor, and had to be lifted into bed. On my arrival the patient was extremely blanched, almost pulseless, and complaining of intense abdominal pain. On examination the flanks were dull on percussion, and it is clear that rupture has occurred, and that internal hæmorrhage is going on. I obtained the necessary instruments and assistance as soon as possible, being nearly a mile from home, and opened her abdomen. On opening the peritoneum a flood of blood and a floating fœtus escaped from the abdomen. I at once seized the left broad ligament, pulled it to the surface, transfixed, ligatured, and removed it with the placenta *in situ.* The abdomen was sponged, washed and dried, and the wound stitched in the ordinary way.

The patient lost no more blood, and made a good effort to recover, but never fairly rallied, and died on the fourth day.

The specimen removed was the left broad ligament filled with placenta and blood-clot. The fœtus was about three and a half months old.

CASE IV.—Mrs K., æt. 25. First seen October 1st, 1890, complaining of "flooding." Duration, five weeks.

*History.*—Patient has been married three years, and had a child fourteen months ago, which she is still suckling. She had a favourable confinement, and there is no history of subsequent trouble.

Two months prior to the commencement of the flooding she had not menstruated, but did not consider herself pregnant. During the last five weeks she has had attacks of colicky pain in the lower part of the abdomen, lasting sometimes one and a half hours, and so severe that she was compelled to go for ease on her hands and knees. The discharge has been very stringy and thick.

*Present State.*—She is a small, thin, neurotic woman, with anxious expression. On examining her breasts, there is a dark areola round the nipple, and some milk can be squeezed out, but as the child is still suckling these are accounted for. There is no sickness. She has some frequency of micturition and a bearing-down pain in the rectum.

*Per Vaginam.*—There is a soft, fluctuating swelling lying in the left posterior fornix, low in Douglas's pouch, and pressing forward the uterus against the pubes. To the left of this a firm nodule like the ovary can be felt. Bimanually the mass is about the size of a small fœtal head and fairly movable. The cervix is soft and os patulous.

I advised the patient to come into Hospital at once, but she went home, and I did not see her till the 8th of October (a week after). She then came into my consulting-room hardly able to walk and very exhausted. I at once sent her to the Hospital, and visited her two hours later. She was very breathless. Temp. 105°; pulse 160 per minute, but no blanching of lips or face. The swelling is somewhat larger than a week ago, but retains the same characters. She has had very severe diarrhœa with great tenesmus.

9*th.*—Temp. 103°·4; pulse 151. Had a restless night. Considering the condition of the patient I deemed it inadvisable to interfere, the probabilities being that she would not survive the operation. In this my brother, who saw the case with me, concurred. I ordered her peptonised milk with a tablespoonful of brandy every two hours, and powders, containing 10 grains each of soda and bismuth and $\frac{1}{8}$ grain of morphia, every four hours.

11*th.*—Patient very prostrate, gradually getting weaker; the diarrhœa continues. I examined her again and found the swelling larger. As there seems a possibility that the continued high temperature is due to suppuration in the sac, I explored the swelling through Douglas's pouch with an aspirator needle under strictest antiseptic precautions, but only got a few drops of *old* blood.

14*th.*—Patient very weak. The diarrhœa is persistent, the abdomen tympanitic, but not tender. She is dull and heavy, and only answers questions when put to her in a loud voice. Pulse 140, small and feeble. Ordered 5♏ doses of Tinct. digitalis every two hours.

16*th.*—Patient quite violent, wants to get out of bed, and imagines she sees objects. Temp. 104°·6. Tongue dry and cracking. Diarrhœa still persistent, and she has lost control over both sphincters.

*17th.*—Lies on back quite unconscious, cannot be roused, taking almost no nourishment. Temp. 104°·6; pulse uncountable.

*21st.*—Died early this morning, the high temperature continuing and the diarrhœa persisting to the last.

*Post-mortem Examination*, 30 hours after death.—The pelvis was removed entire from the body and showed the following:—There is a small pyosalpinx on the left side. The right tube is greatly distended with coagulated blood in layers. The tube has ruptured into the broad ligament, and at least a quart of blood forced its way down between the peritoneum and the pelvic fascia, stripping off the peritoneum from the floor of the pelvis (extra-peritoneal hæmatocele). The right ovary is lying posteriorly. The uterus and bladder are jammed against the pubes and the rectum against the sacrum by the mass of extravasated fluid and clotted blood. The high temperature and the diarrhœa cannot, to my mind, be accounted for in any other way than by supposing it to be due to the absorption of pyrogenous material from the blood extravasated into the pelvis, as no other disease was present, and death resulted from the hæmorrhage.

CASE V.—Mrs L., æt. 34. First seen September 9th, 1881, complaining of a "dragging pain in the right side and constant and excessive loss." Duration, three months.

*History.*—She is the mother of seven children, the youngest being sixteen months old. She always had good times at her confinements. The last was very quick, but she recovered slowly. Although she got up on the 10th day she never felt well, having a constant pain in her vagina. The child was weaned at nine months. She menstruated six weeks after this (*i.e.* four and a half months ago) and continued regular for three months. After this, menstruation became irregular, commencing a week after, stopping for two or three days, and continuing more or less up to the time she consulted me. When this irregularity began she had a very severe loss, so that her neighbours in attendance suggested a miscarriage. Six weeks ago, when cleaning the grate, she was seized in the rectum with a severe bearing-down pain, "as if something must come through her." She felt very faint and had to be put to bed. This pain left her very weak, and continued off and on up to three weeks ago. Since then it has not been violent, but an aching, gnawing sensation remains. She has had more or less hæmorrhagic discharge ever since. Bowels are regular; no trouble with micturition.

*Present State.*—Patient well nourished, rather anæmic, with a worn-out, anxious expression. She complains of a dragging pain in the right side, and morning sickness. There is colostrum in both breasts.

The abdomen is very flaccid. On palpation the right kidney is felt to be movable; nothing else abnormal can be detected.

*Per Vaginam.*—The uterus is jammed forward. The cervix is soft, os patulous. Behind and to the left of the uterus is a semi-fluctuating mass about the size of a fist, immovable and slightly tender. Along its under surface is felt a band (tube ?) and a softer and smaller swelling. Bimanually it can be indistinctly felt.

The patient was admitted into my private hospital on September 14th, and on the 15th I performed the following operation:—

The usual abdominal incision was made. On entering the peritoneal cavity the omentum was found adherent to the abdominal wall, and the intestines in the pelvis were matted together. On getting down to Douglas's pouch a mass of adhesions was encountered, and on breaking through these my hand came on a cavity filled with blood-clot. The right tube was twisted over to the left, distended, and adherent. On breaking down the adhesions it was pulled to the surface, and found to have ruptured. The corresponding broad ligament was transfixed, tied with a figure-of-8 ligature, the diseased appendage clamped and clipped off. The left tube and ovary being healthy were left.

The abdomen was well washed out with sterilized normal saline solution at 110° F. During this process many coils of intestine protruded, and were with difficulty replaced. A drainage tube was left in Douglas's pouch. The patient was put back to bed very cold, evidently from the manipulation required to return the gut, but her pulse never varied nor failed.

16*th.*—Patient had a good night; very little discharge from tube. Temp. 98°·6; pulse 100.

17*th.*—Good deal of distension; seidlitz powder, and turpentine enema. Temp. 99°·4; pulse 112. One oz from tube.

19*th.*—Patient very feverish and wakeful all day. Temp. 102°; pulse 125. A good deal of watery fluid from tube; abdomen very tender, no distension; ice applied to head.

20*th.*—Patient very drowsy, sleeping at intervals, breathes heavily. Temp. 102°·6; pulse 126. Bowels well moved; very little from tube, which was removed. Ordered grs. iij. of calomel every two hours, and to be sponged with tepid water; patient menstruating.

21*st.*—Patient had a good day, free from pain. Temp. 99°·8; pulse 100. After this patient had no drawback, and was able to go home on the 17th day.

*Remarks.*—Of the five cases, four were submitted to operation, the fifth was too ill to allow of any operative interference.

Of the four patients operated upon, three recovered and one died. Amongst the recoveries I include Case II., who died before dismissal from the Hospital on the 21st day after operation, but from causes entirely independent of the operation. In all three patients who recovered the intra-peritoneal bleeding was limited by adhesions, the result of previous pelvic peritonitis. In the patient who died, bleeding was not thus limited, hence the sudden and fatal calamity.

In three cases the diagnosis was confirmed by the discovery of a fœtus, but in the other two no trace of fœtus or placental tissue could be found, after most careful search, in one after operation, in the other after post-mortem examination. Am I then justified, in the absence of such proof, to include these two cases under the heading of ectopic gestation? Admitting the possibility of error, I feel strongly that the clinical evidence is all in favour of this course—for

α. The history of the cases is very suggestive.

β. The conditions found at operation, whether a fœtus is found or no, are too similar to escape notice.

γ. The termination in death seems equally certain in both.

Then it may be asked, What other condition could produce spontaneous bleeding into a tube, rupture of the tube, and fatal hæmatocele? I can imagine no other without soaring into the realms of fancy.

The objections are surely easily disposed of. Is it remarkable that a fœtus of from six weeks to three months old should be lost in the peritoneal cavity? Does not every work on abdominal surgery particularly warn the operator of the danger of leaving sponges, even large ones, in the abdomen? Is it not true that dead animal tissues are quickly consumed in the peritoneum? Considering these facts, it appears to me remarkable, rather, that so many proofs of this sort can be produced. Anyone accustomed to histological work will appreciate the difficulty of producing satisfactory proof in the form of placental tissue from the débris dug out at such an operation. If it is found, the finder is fortunate and the diagnosis certain; if not, no one is to blame, and the diagnosis is not negatived by the misfortune.

In Case III., the symptoms were those of intestinal obstruction, and for this alone advice was sought. No clue was given by the woman, though she was frequently and carefully questioned, which would have helped to confirm my suspicions that an ectopic gestation existed, and it was only the intra-peritoneal rupture that rendered it sufficiently certain to justify immediate operation. Had the patient not been speedily relieved of her intestinal symptoms, I should certainly have opened her abdomen, and with every possibility of saving her life.

Curiously enough the only two cases in which portions of membrane resembling decidua could be demonstrated in the uterine discharges were the two (Nos. 2 and 4) in which no trace of fœtus or fœtal structures was discovered, though in all cases the discharges were carefully examined by me whilst the patients were under my observation. This raises the question of the value of this sign.

In three of the cases the patients had, as in Case I., a previous attack of peritonitis; or, as in Cases II. and V., had never felt well since the last confinement.

Four of the cases had two pronounced symptoms, viz.—(1)

recurring uterine hæmorrhages, and (2), severe attacks of colicky pain in the lower part of the abdomen. Rectal tenesmus occurred sufficiently often to make the symptoms worthy of attention. The most characteristic symptoms and signs met with were—

1. A history of previous pelvic mischief.
2. Many of the symptoms of pregnancy, changes in the breasts, vagina, os, and cervix.
3. Recurrent attacks of hæmorrhage preceded by painful spasms in the lower abdomen.
4. The presence of a tender, elastic swelling behind or to one side of the uterus, which increased rapidly in size.

All the cases were under observation from one to six weeks, and in all this progressive enlargement was noted.

To sum up, where symptoms and signs such as are described exist, there are sufficient grounds for the diagnosis of ectopic gestation, and the abdomen should be opened without delay.

## IV.—ON CERVICAL RIBS, WITH EXAMPLE IN LIVING SUBJECT.

By DAVID WALLACE, F.R.C.S. Ed.

(*Read before the Medico-Chirurgical Society of Edinburgh*, 2*nd December* 1891.)

THE occurrence of cervical ribs in man is, I think, of sufficient rarity to justify me in laying before this Society a short note upon them from an anatomical point of view, before showing a patient who presents the peculiarity. Apart from variations in shape, anatomically three variations in ribs are specially referred to by anatomists, viz.,—(1) *Rudimentary*, (2) *Bicipital*, and (3) *Supernumerary*. The rudimentary and bicipital varieties are of less interest to the surgeon than the supernumerary; so I may dismiss them by merely stating that the highest and lowest ribs are apt to occur in an imperfectly formed condition, sometimes the first and sometimes the twelfth being so small as to represent, as said by Professor Struthers,[1] the rib shrinking into the transverse process of the dorsal vertebra, just as the supernumerary cervical rib may be said to represent the anterior tubercle of the transverse process expanded into a rib. Professor Turner,[2] writing of the bicipital rib, says,—“The anatomical peculiarity is not due to a bifurcation of the shaft of a single rib at its vertebral end into two heads, but to the fusion of what should have been the shafts of two distinct ribs into a common body. It invariably occurs at the apex of the thorax.”

Supernumerary ribs occur as an addition on the seventh cervical or first lumbar vertebræ, but undoubtedly they are much more frequently in relation to the seventh cervical vertebra than the first lumbar. Professor Struthers has described, in the *Journal of Anatomy and Physiology*,[1] a specimen of a lumbar pair of ribs constituting the lowest pair of thirteen pairs of ribs. The occurrence of supernumerary ribs had been observed by Galen, Fallopius, and others, but they, as Dr Dymock[2] writes, have forgotten to favour us with the details, and we are ignorant of the region in which they were met with. M. Hunauld,[3] 150 years ago, described nearly all the forms of cervical ribs which have in more recent years been noted; and further, as pointed out by Dr Dymock, he was the first to accurately describe their developmental formation.

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[1] *Vide Anatomical and Physiological Observations*, by Professor Struthers, 1854.

[2] *Vide Journal of Anat. and Phys.*, vol. xvii.

Professor Grüber,[4] in 1869, published the results of an elaborate investigation into the question, and in a short statistical table shows that from the time of Hunauld (1740) down to that year, 76 examples had been recorded of cervical ribs occurring in 45 individuals. Since then numerous other cases have been put on record, notably by Sir William Turner[5] (7), Professor Struthers[6] (10), and Professor Shepherd[7] (4).

Professor Struthers, after reference to the variations in the shape and length of the seventh cervical transverse process, says that he believes the occurrence of cervical ribs is more frequent than supposed, but that in many instances they are merely rudimentary, and the part not being closely dissected, they escape notice.

The majority of specimens described have been discovered in the dissecting-room or after maceration; and although varying much in size, and on this account in relationship to other structures, it is found that they can be conveniently grouped under two divisions —1*st*, Those which are short and possess merely a head, neck, and tubercle—the short process beyond not being worthy the name of shaft; and, 2*nd*, Those which, in addition to the above, are so developed that they possess a shaft, and it may be extended so far as to articulate by cartilage with the sternum. For a long while no such perfect cervical rib was found, and Sir George Humphrey, in his book *The Skeleton*, published 1858, states that this does not in any case he knows of happen. Professor Struthers mentions a case where on the left side the shaft was prolonged to the sternum, but the cervical rib in that case joined the cartilage of the thoracic rib nearly an inch from the sternal margin. Through the kindness of Sir William Turner, I am able, however, to show you a perfect cervical rib in position, and it articulates directly with the sternum by a broad strong cartilage.[1]

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[1] *Vide Journal of Anat. and Phys.*, 1875.
[2] *Vide Edinburgh Medical and Surgical Journal*, 1833.
[3] *Vide Mémoires de l'Academie Royal des Sciences*, 1740.
[4] Grüber, *Memoirs of the Imperial Academy of St Petersburgh*, 1869.
[5] *Op. cit.* [6] *Op. cit.*
[7] *American Medical Journal*, 1883.

The true morphology was first pointed out by Hainauld. It is, Quain states, very generally admitted that the part in front of the vertebrarterial foramen of the cervical vertebra corresponds in series to the first part of a rib; and thus the anterior tubercle of the transverse process of the seventh cervical vertebra may, remaining separate from the vertebra, shoot beyond its ordinary dimensions and run parallel, or very nearly parallel, with the first thoracic rib, and end half-way to the sternum as a floating or free rib resembling the asternal ribs of birds. It may, however, join the first rib, or, as in the specimen above referred to, pass forwards and articulate directly with the sternum. This excessive ossification, though usually restricted to the seventh cervical, may be seen in the sixth also, as in a preparation described by Struthers "as showing the rudiments of cervical ribs on the sixth and seventh vertebræ." This was in a male subject aged four years.

The relationship between a cervical rib and the soft parts in great part depends on the length of the rib, and it has been pointed out that if the rib be short, consisting of head, neck, and tubercle, the anterior scalene muscle is, as ordinarily, attached to the scalene tubercle on the first thoracic rib, while the subclavian artery lies anteriorly to the cervical rib. On the other hand, if the cervical rib be longer and join the cartilage of the first thoracic rib, the anterior scalene muscle may be attached to it, and the subclavian artery groove its upper surface posteriorly to the muscle. No definite rule, based on the length of the rib, can, however, be laid down for these relationships. The brachial nerves may also pass over the cervical rib; and in a specimen shown by Dr Symington to this Society in 1883, the eighth cervical and first dorsal nerves passed over the rib, the others passing under it over the first thoracic. Dr Symington's specimen was a short rib ending in a well-marked tubercle, but attached to the thoracic rib by a strong bony process just at the scalene tubercle.[2]

A few months ago I observed, when examining a patient's chest at the Royal Public Dispensary, that there was present a prominence above the right clavicle, which, on palpation, was hard and bony. On examination of the prominence, I concluded that it was a supernumerary rib. I showed the case to Professor Chiene and Sir William Turner; and as they corroborated me in the view I held, I thought it might interest the members of the Society to see the patient.

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[1] Unfortunately in this specimen, in which the spinal column and ribs are in position, there is an abnormality in the vertebræ—one, possibly a cervical, being absent. Professor Turner explains the peculiarity by the view that the last lumbar vertebra is anchylosed to the sacrum.—*Vide op. cit.*

[2] At this point in the paper Dr Wallace showed specimens from the Anatomical Museum of the University. These specimens, which he was enabled to show by the kindness of Sir William Turner, Curator of the Museum, were chiefly a series collected by Dr Robert Knox, which was described and figured by that anatomist in the *London Medical Gazette* of 1843 in a series of papers on "Transcendental Anatomy."

The patient, Hugh M., æt. 60, is a labourer, who states that he never received any injury to the right shoulder, and has not previously had his attention attracted to a swelling situated in the right supra-clavicular region. He has no pain nor discomfort in the right arm.

*Present State.*—Comparison of the supra-clavicular regions reveals the presence of a prominence on the right side, which is situated opposite the middle of the clavicle, with its centre 4 inches from the mesial plane of the body, and its highest point 1¾ inches above the clavicle. The prominence is immediately under the skin, which moves freely over it. It is a rounded, hard, bone-like swelling, the outline of which can be felt at the upper, inner, and inferior margins. Externally, however, it is continuous with a hard flat surface which passes outwards, upwards, and backwards until it is lost under the anterior edge of the trapezius muscle. On drawing the arm down, the prominence, which is about the size of a walnut, does not move, but can be more distinctly felt; while, on the contrary, if the arm be pushed upwards, the prominence is hidden by the clavicle. To the most internal part of the prominence a band is attached, but whether this is muscular or fascial it is difficult to say.

*Subclavian Artery.* — The subclavian artery is felt pulsating most distinctly immediately in front of the extremity of the cervical rib, *i.e.*, it lies exactly in the angle formed by the clavicle and anterior end of the rib. No pulsation can be detected externally to the point of rib, and the artery seems to dip under the point of the rib, and then under the clavicle. Pulsation is felt as high as a line drawn horizontally through the point of the rib. Probably this portion of the artery is the third part of the subclavian.

The *anterior scalene* cannot be felt to be inserted into the cervical rib.

Immediately above the extremity of the supernumerary rib a smaller bony prominence is detected, which seems to curve backwards in a direction parallel to the cervical rib, and suggests the possible presence of a second supernumerary rib from the sixth cervical vertebra.

*On the left side* there is nothing similar to *the cervical* rib, but a process similar to the second process is felt, and this has precisely the same relations.

Anatomists having drawn attention to the presence of cervical ribs, clinical observers have from time to time had their attention directed to the peculiarity during life, and numerous cases are recorded where mistakes in diagnosis have been made. Professor Turner refers to this possibility in his paper in the *Journal of Anat. and Phys.*, 1870, vol. iv., and describes, among others, a case he saw in Sir J. Paget's Wards at St Bartholomew's Hospital, and quotes as follows from a letter he received from Sir J. Paget:—

"In each case the imitation of aneurism was close enough to deceive an unwary surgeon; but to one who examines closely, and has in his mind what the case may be, the mistake seems scarcely possible so long as the artery is healthy. I can well believe, however, that great difficulty of diagnosis would exist in any case in which the unusual arrangement of parts is combined with a morbid state of the artery, especially with that state in which arteries, not evidently diseased in texture, have more than natural pulsation. This state is common in the abdominal aorta, and I have seen it two or three times in subclavian arteries and in carotids."

Sir G. Humphrey and Professors Struthers and Shepherd[1] also refer to possible mistakes in diagnosis; and I think, from the specimen No. 1, which I have shown to-night, there can be no doubt but that the possibility of an aneurism would occur to one if he had been called on to examine the case during life. While in the patient I have had the honour to show you the resemblance to an exostosis is very close, and the mistake might easily have been made.

In those cases where the rib is short, and ends in a tubercle or knob, but in which the subclavian artery does not pass superficially to it, the resemblance to an exostosis is a marked one; while, on the other hand, when the artery passes over the cervical rib, it is so high, and the pulsation is so superficial, the mistaken diagnosis of an aneurismal swelling is highly probable.

The presence of a cervical rib ordinarily is not troublesome to the possessor, but where the artery is high, an injury to the vessel might very readily occur.

## V.—THE INFLUENCE OF INFLUENZA UPON WOMEN.

By ROBERT W. FELKIN, M.D., F.R.S.E., L.R.C.P., L.R.C.S.E., etc., Lecturer on Diseases of the Tropics and Climatology, Edinburgh School of Medicine.

(*Read before the Obstetrical Society of Edinburgh, 4th December* 1891.)

As, unfortunately, influenza has reappeared this winter, I am desirous of calling attention to one or two points in relation to it which, so far as I have noticed, have received scant attention, namely, its action upon pregnant women, its effect upon menstruation, and, in this connexion, the behaviour of the rash when present, and the occurrence of what I may call erratic menstruation, or at any rate uterine hæmorrhage.

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[1] Shepherd, *American Medical Journal*, 1883.

Naturally I am not going to inflict upon this Society my views upon the general subject of influenza, but I think it right to mention that I consider the disease to be dengue modified by climate.

On March the 5th, 1890, Dr D. J. Brakenridge read a most valuable paper on Influenza before the Medico-Chirurgical Society, and he noted that "the tendency of the disease to attack women about the menstrual period was in many cases a very noticeable fact" (*Trans. Medico-Chir. Society*, vol. ix. p. 124). In the discussion which followed this paper, I said, referring to cases which I had seen, "in one case miscarriage had taken place, in two abortion, and in another abortion threatened" (*Ibid.* p. 140).

Before referring to the cases which I then mentioned and to others which I have since seen, let me refer briefly to one or two facts with regard to the action of dengue, to its relapses and rashes. Horton says, "After a day and a half to three or four days we may have a remission of the severe symptoms, which remission may last for two or four days, when, if the patient is not carefully treated, a second paroxysm occurs. On the sixth or seventh day from the onset of the disease a second or terminal rash appears, variable in character. It may be red, smooth, and continuous as in scarlet fever, or rough and dark as in measles. Or it may be papular, vesicular, or like urticaria or erysipelas" (see *Diseases of Tropical Climates*, Horton, 1879, 2nd edition, p. 170 *et seq.*) Moodeen Sheriffe (Madras, 1872) said, "The first rash may appear on the first, third, or fifth day, or there may be two or three rashes, each severer than the preceding. It is well also to notice that pain in the testicle may be troublesome, and an 'effusion of serous fluid in the sac of the tunica vaginalis' may take place." Dr W. J. Moore (*Manual of the Diseases of India*, 1886, 2nd edition, p. 157 *et seq.*) refers to the swelling of the testicles and the rashes, an initial and a secondary rash and frequent relapses, "persons often suffering from two to three attacks." Again, in Quain (vol. i. p. 309) and others, we find it stated that in the female uterine hæmorrhage and miscarriage may occur. Referring to others, to which I need not call especial attention, we find it often mentioned that in dengue a well-marked crisis has been noticed, indicated by pain in the groin and testicles in men, or pain in the groin and back in women (see Leblond especially).

During 1889–90, and again in 1891, I have seen considerably over 300 cases of influenza in this city, and, fortunately at any rate for my theory of influenza, I have seen a considerable number of rashes, certain abortions, miscarriages, and premature labours, which to a certain extent uphold my view of the real nature of the disease. It would take too long, and would probably be uninteresting to most of the members of this Society, were I to refer to the various epidemics of dengue which I have witnessed in Africa, but I must say that the cases of influenza which I have seen in this country, and three attacks which I have myself experienced, are conclusive to my mind that we are dealing with one and the self-same disease, modified, however, as I have before stated, by climate.

To come, however, to my cases. The first was that of Mrs K., who was expecting in December 1889. I was called to her on November 12 at 9.30 P.M., on account of sudden hæmorrhage. She said that she had been ill for five days with influenza, for which she had been treated by someone else. On this day she had, to use her own expression, become as red as a lobster, and had lost a good quantity of blood, and having engaged me for her confinement she sent for me. The waters had broken half an hour before my arrival; she was bleeding pretty smartly; the head was low down. I therefore delivered her at once. Her recovery was protracted, owing to a secondary rash, which occurred upon the 14th of November, of a papular character, accompanied by a temperature of 103°·8 and a second attack of coryza.

Mrs MacD., expected in June 1890. I was sent for on December 4, 1889. She was then suffering from a well-marked attack of influenza; temperature was 105°; fell to 101° next day; but the day after she had another rise of temperature, 104°, accompanied by an eruption which looked very much like that of scarlet fever, and after having seen her at 3 o'clock in the afternoon, I was called back at 6, when hæmorrhage and abortion had taken place.

Mrs A., expecting in April 1890, sent for me on December 6, 1889. She had been ill for only a few hours; her temperature was then 102°, but at 11 in the evening it was 105°·2. Two days after she had a rash similar to the woman just referred to. An attack of diarrhœa occurred that day, but in the evening I was sent for and found her bleeding severely. She had, as she told me, some bearing-down pains. Thinking that she might be going to abort, I treated her with opium, and on my visit next morning I found that she likewise had a severe eruption, but that the hæmorrhage had stopped, and she was subsequently delivered at full term.

Mrs R., expecting in May 1890, sent for me on December 20, 1889, for severe bleeding. She had been suffering, as I found, from influenza for six days. She had been treated by someone else (a dispensary student), but although I did my best for her, I could not avert an abortion which took place on the 21st.

Passing now to recent cases,—Mrs W., expecting in December or January, had a severe attack of influenza at the commencement of November 1891, on the fifth day of which month, after being in bed for three days with influenza, she had a severe attack of hæmorrhage, and miscarried next day. I did not see her until after the event, but the day after she had a papular eruption covering the whole body.

Mrs S., expecting in February next year, sent for me on 26th of November. She was suffering from influenza. Temperature was 105°, but as usual it fell next day to 102°. The day after a papular eruption occurred, and the next day I was sent for hurriedly, to find that she had given birth to a premature child, and it is noteworthy in this case to mention that the child had an eruption similar to that of the mother. This occurrence I have only noticed once.

Mrs M'G., expecting in January 1892, sent for me on the 3rd of November, for severe hæmorrhage. Her temperature was 104°. She was covered by an eruption which looked very much like measles, but as she had had measles twice before, I recognised it as an influenza eruption. Notwithstanding all treatment she was delivered next day.

Mrs B., expecting in January 1892, sent for me on the 10th of November. This case was similar to the last, and I need not further refer to it.

Mrs I. sent for me on 18th of November 1890. She was suffering from influenza. It followed its normal course until the 22nd, when I found her covered with a papular eruption. She said that she was unwell, which she thought strange, as she had only concluded her previous period on the 10th, and she was usually very regular.

Mrs A. and Mrs W. both sent for me on Monday, 24th of November 1890. They both had influenza. On Wednesday, the 26th, both had an eruption, and told me that they were unwell. Mrs A. had concluded her last period on the 20th, Mrs W. on the 19th.

Mrs B. sent for me on the 15th of December, suffering from influenza. On the 19th she had a rash, and was unwell. Her previous period had ended on the 10th of that month. This case was very interesting, because two of her sons were taken ill on the 21st, and on the 26th both complained of excruciating pain in the back and testicles.

December 21st I saw Mrs W. She had had influenza for three or four days. Feeling exceedingly weak and ill on this day, she sent for me. I found her with a temperature of 104°·8, covered with a measly eruption, and unwell. Her previous period had ended on the 15th.

On January 2, 1891, I was asked to attend Miss A. P. She had had influenza for four days, and was alarmed at the recurrence of her period, which was very profuse, after only ten days' absence.

On the same day Mrs I., Mrs T., and Mrs B. all applied to me under similar circumstances, the date of the period varying slightly in each case, but never more than twelve days before my visit.

On the 5th of January I was sent for to see Miss P. She was in extreme anxiety because of an urticarial eruption, which she attributed to some salmon patties she had eaten on New Year's Eve. She had been feeling unwell, and had been advised not to go to the party where she had them. On the 2nd of January her temperature had been 104°. Being a medical student, she attributed this to a disordered stomach; but on the 5th she sent for me, thinking she was poisoned, and that the eruption was due to it. Her temperature was then only 101°, but she complained of rheumatic pains in all her joints, a severe pain in her back and in the lower part of her abdomen, and on the 5th pretty sharp hæmorrhage occurred. She had concluded her last period on the 24th of December 1890. The period lasted for five days, and disappeared with the eruption.

Mrs M., seen also on the 5th. She had been suffering from influenza for five days. Severe hæmorrhage came on later in the day, which weakened her very much, and on the 7th she died.

I need not trouble you with many more cases of a like description, although out of one hundred women whom I have attended, no less than sixty have suffered from some menstrual irregularity, and seventy-nine from ovarian pain.

I must, however, refer to three cases which I have seen very recently.

The first was Miss M'L., whom I saw on the 22nd of November. She is 12 years and 3 months. She was taken with severe influenza on the 19th, but as her mother and governess had had it previously, they thought they would treat her. They were surprised, however, to see on the morning of the 26th that she had lost a considerable quantity of blood, and as she had previously shown no signs of puberty, they were alarmed, and sent for me. The day after the appearance of the blood the usual measly rash occurred.

I have another case of this description—Miss T. She is only 10. I saw her on the 1st of December, when she had influenza, but not very badly. On the 3rd, her mother told me, with some surprise, that she had become unwell for the first time, and that she had a curious eruption, which had been diagnosed by a student as herpes zoster. This I hardly wonder at, because, from the middle of the back, curving downwards towards the right, and following the course of a nerve, there was a well-marked chain of fifteen herpetic-looking spots. I was able to get a photograph of this case, but, unfortunately, little could be made of it, as the room in which it was taken was very dark, and it had evidently been under-exposed.

The last case I will call your attention to is that of Mrs R. Her husband had been suffering for some days from influenza. On Nov. 6th I was called in, and found her with a severe attack of influenza, and a temperature of 105°. A steady flow of blood had set in, she being about three months pregnant. The next day, the second of the hæmorrhage, a well-marked papular rash occurred.

On the 8th the hæmorrhage, which had not been very severe, stopped, and she is now convalescent.

I suppose it behoves me to add one word in conclusion to give my opinion as to the occurrence of the various abnormalities which I witnessed. I think that they can only be due to either—(*a*) high temperature, (*b*) ovarian irritation, or (*c*) reflex irritation due to the eruption. This last cause I think a very doubtful one, and consider it more likely that the second cause is the one to which most attention should be paid.

Knowing, as we undoubtedly do, that the crisis in dengue is shown by pain in the groin and testicles in men, I do not see why like irritation should not occur in females, and I should be very glad to hear the opinion of other members of this Society as to whether they have any experience either confirming or confuting my views.

Since this paper was written I have seen Miss E. I was called to see her on January 18, on which day she was attacked by influenza. She is 49, and had not been unwell for five years, but on the above date, to her great surprise, her period came on.

## VI.—THE PATHOGENESIS AND TREATMENT OF ÖOPHORITIS.

By Robert Bell, M.D., F.F.P.S.G., Senior Physician to the Glasgow Hospital for Diseases peculiar to Women.

If we carefully look into the history of öophoritis and subsequent hyperplasia of the ovary, we will probably be led to the conclusion that these conditions, as a rule, are secondary to a morbid condition which has previously existed in the uterus; that the ovarian mischief, in the majority of instances, is dependent upon disease which has for some time before been, and is now coincident with that in the neighbouring organ. What, however, is of much greater consequence for us to be assured of is that, if the morbid process has not proceeded too far in the ovary, the organ can in many instances be re-established in health *pari passu* with the recovery of the uterus. The question naturally arises in these circumstances, What is the *modus operandi* of the disease process? So far experience has distinctly taught me that when öophoritis exists it has very frequently, if not always, been preceded by endometritis. However, I do not pretend to be in the position to affirm that the disease may not sometimes arise *de novo;* but that the cases where this occurs are few and far between is a subject on which I can entertain no doubt, and it is because of this conviction that I have been encouraged to persevere with the treatment advocated in this paper in cases which, for a time, seemed to be quite intractable, but which, though trying one's patience to the utmost, eventually yielded and recovered. It might possibly be demonstrated that the ovaries are more frequently affected when the cervix is most seriously involved, but then we must bear in mind that this portion of the uterine canal is liable to suffer to a greater extent than the upper portion, as the whole of the acrid discharges which are secreted there in endometritis must of necessity pass over the cervical mucous membrane, and aggravate the disease that already affects and has induced hypertrophy, and probably excoriation of it.

The fact, however, which compels me to suggest that endocervicitis has more influence as a factor in inducing ovarian irritation than disease of the corpus and fundus uteri is that, on passing the applicator through that portion of the canal, the pain consequent upon doing so is generally referred to the affected ovary, demonstrating, I hold, a direct nervous connexion therewith. Then, again, we invariably find that when öophoritis supervenes upon a laceration of the cervix, that it is the ovary of the affected side which becomes involved, and the ovarian disease does not yield to treatment until the laceration is repaired, or the pendulous portions of the injured cervix removed. This coincidence, however, may be due to the fact that the pathological condition of the cervix has given rise to disease of the uterus as a whole, and that the health of this organ cannot be restored until the integrity of the cervix has been re-established.

We are all aware of the intimate relationship of the uterine to the ovarian circulation, and it is only natural to conclude, that if the circulation is interfered with in the uterus, which undoubtedly is the case when endometritis is present, it must react upon the ovaries, whose affluent and effluent vessels are continuations of those supplying the uterus.

There is, however, another factor which plays a most important part in the pathological process, that being the effect of the uterine irritation upon the sympathetic nervous apparatus, thus further influencing the circulation through the medium of the vaso-motor system. Any persistent morbid process, like that which is present in endometritis, must necessarily have a marked effect upon the sympathetic ganglia from whence the vaso-motor filaments supplying the uterus are derived, and as the ovaries and uterus are supplied from the same source, it stands to reason that the circulation in the ovaries by reflex influences must be materially affected. The result is that the hyperæmic condition of the uterus is reflected to the ovaries, producing a congested condition of these organs. Such being the case, it is only natural to conclude that, if the original morbid condition is removed, the secondary disease will also subside; and such in point of fact is really what takes place, provided the disease in the ovaries has not advanced too far. It is, of course, difficult to decide right off when a case has advanced beyond the reach of medical treatment and crossed the barrier beyond which resolution will not be assured.

I have, however, taken cases in hand when the ovary has been enlarged to the size of a tennis ball, and have obtained most satisfactory results after from three to six months' treatment. If cystic degeneration of the organ has commenced, I need hardly say no treatment short of operation will prove of any avail. The instances of ovarian disease, however, which we constantly meet with, are, as a rule, so amenable to the treatment I have adopted, that it is hardly fair to the patient not to give her at least the chance of being relieved by this method, and thus avoid an operation which, even if it be successful, cannot but be humiliating to her.

With the view of demonstrating that the conclusions I have arrived at are correctly based upon fact, let me devote a few moments to the consideration of a lacerated cervix (say on the left side), and its effects. Why is it, if this has occurred and the ovary becomes affected, that it is invariably on the side upon which the laceration exists? How is it that the right ovary remains intact? In the light of the present day, surely it is quite unnecessary for me to enter into any explanation on this point. I have seen a considerable number of instances of ovarian disease, a vestige of which did not exist prior to a confinement, develop rapidly after that event, and in each case a laceration of the cervix was discovered on the side of the affected organ.

Moreover, notwithstanding what some authorities may assert, the ovarian affection in every instance disappeared very rapidly after the rent in the cervix had been repaired, and not till then. There is not the slightest doubt that injury to the cervix is a fruitful source of disease, not only in the uterus itself, but also in the ovary of the affected side. Repair the cervix, therefore, and restore its health, when, in a short time, if the disease has not advanced too far, the ovarian mischief will subside and entirely disappear. If, on the other hand, the disease of the cervix is idiopathic, the development of symptoms and of sequelæ will not be so rapid, and possibly the ovaries may escape altogether. If, however, degeneration of the cervical tissue has supervened and erosion taken place, from which surface a purulent discharge is given off, then it is probable that the ovaries will become secondarily affected, and their health will only be restored if the primary disease is first removed. We should also bear in mind that, if cervical disease is permitted to exist, it is not likely to end there, but will spread by continuity of tissue to the whole extent of the endometrium, and possibly to the tubes also. The walls of the uterus in consequence will become hypertrophied and softened. Flexions will thus frequently be induced, and interference with the venous circulation will arise which will tend to aggravate the original mischief.

Now, to proceed to the treatment of such cases, it is hardly necessary for me to state that in the event of the endometrium having become affected, it will be essential, before the cervix can be permanently relieved, that the condition of the former be simultaneously attended to. Otherwise, as I have before remarked, the acrid discharges, which invariably have their source in endometritis, would continue to flow over the cervical mucous membrane and maintain the irritation which previously existed, and this in spite of all the treatment that might be applied to it *per se*.

To illustrate my method of treating such cases, I will detail two typical instances of öophoritis—one depending upon laceration of the cervix, the other upon idiopathic disease. I take these two cases, because both occurred in young women; and there can be no doubt of their history, as I have known the patients for over fifteen years, and have attended them during a period which extends for a considerable time prior to and after their marriage, both before and after they were the subjects of ovarian disease, and also after this had been removed.

Mrs S., after a somewhat tedious labour, was delivered of a boy considerably above the average size. She made a good recovery, but some six months afterwards complained of a severe pain in the left side, which was aggravated on any exertion. There was a feeling of bearing down and a copious vaginal discharge of a muco-purulent character. Over the site of the left ovary there was considerable pain on pressure. On a vaginal examination being made, the cervix was discovered to be lacerated on the left side, the rent extending throughout the whole of the vaginal portion. Endometritis also existed, and the uterus was retroflexed and hypertrophied. The course adopted was to treat the endometritis by the intra-uterine application of iodized phenol and vaginal tampons of the glycerine of alum and boracic acid. When the endometritis had subsided somewhat, trachelorrhaphy was done—with the result that in three months the uterus had regained its health, while the ovary returned to its normal size, and all pain and inconvenience had ceased.

The other case is that of a young married lady, Mrs H., who had suffered intensely from dysmenorrhœa and copious leucorrhœa for a considerable period previous to her marriage. Though I did not make an examination then, I was convinced that endometritis was present, this having been induced by attending dancing parties night after night, quite irrespective of the fact that frequently she was menstruating at the time. Menorrhagia also existed, which was induced by the same reckless conduct. After marriage her symptoms became aggravated, and she came to me complaining of intense prostration, both mental and physical, while pain on the least exertion was very acute over both ovaries and in the back. Defæcation was very painful, and there was a profuse muco-purulent discharge. On examination, both ovaries were found to be enlarged and hyper-sensitive to touch. The uterus was retroflexed, and there was metritis. Dyspareunia also existed to a prohibitive extent. She was put under treatment, which consisted of the weekly application of iodized phenol to the endometrium, and each time the uterus was restored to its normal position, and retained there by means of tampons soaked in glycerine of alum and boracic acid, which were renewed in three days and fresh ones inserted. In less than four months all trace of discomfort had disappeared; the uterus remained *in situ*, and the ovaries were reduced to their normal size, and within a year afterwards she became pregnant.

There would be no difficulty in citing any number of additional cases to illustrate what I have endeavoured to describe as one of the most potent factors of öophoritis, and to demonstrate what happy results can be attained by the employment of suitable measures for the restoration of the uterus when disease of this organ is concomitant with öophoritis.

I do not, however, wish it to be inferred that I hold öophorectomy can always be avoided; but at the same time I cannot refrain from stating as my firm conviction, that in many instances it may be avoided, if the treatment I advocate receives an honest trial.

## VII.—SUCCESSFUL TREPHINING FOR MIDDLE MENINGEAL HÆMORRHAGE AT THE POINT OF *CONTRE COUP*.

By WILLIAM STEWART, M.D., Surgeon to Leith Hospital.

(*Patient exhibited to the Edinburgh Medico-Chirurgical Society, 2nd December* 1891.)

T. J., aged 46, in the employment of the Dock Commission, fell into the docks at eleven o'clock on the evening of the 30th September of this year, striking a wooden pile in his fall. He was soon pulled out of the water, and was quite conscious, and began to run with the rope of a ship which was leaving the docks, but was urged to go home. He proceeded to do so; but on his arrival at the dock gates, twenty minutes after his fall, and while telling the policeman on duty what had happened, he groaned, fell down, became unconscious, and was convulsed all over his body.

Assistance was immediately procured, and he was removed to the Leith Hospital, where the Resident on duty, Dr Goudie, recognising the nature of the injury, immediately sent off the policeman for me. I at once went to the Hospital, and was fortunate in seeing him in a convulsive seizure, which began with dilatation of the pupils and conjugate deviation of the eyeballs to the right; this was followed by spasms of the left side of the face, of the left arm, and then of the left side of the body and the left leg, followed, after an interval of at least twenty seconds, by convulsions of the whole of the right side of the body, including the face. As the seizure passed off, the eyeballs were deviated to the left side, and the pupils became moderately contracted, but no difference in their size was observed, and slight facial paralysis remained. A scalp wound $1\frac{1}{2}$ inches long, leading to *un*fractured bone, was found $1\frac{1}{2}$ inches above the base of the *left* mastoid process. Breathing was oppressed; pulse about 60, slightly irregular. Blood was escaping freely from the right nostril, but no blood nor fluid from either ear. Patient had three convulsive seizures while in hospital, but none so distinctly pointing to the localization of the lesion as the one I witnessed. After the fit he was unconscious, but exceedingly restless, tossing his head about.

While his head was being shaved, I sent for Dr Mill,—in the absence from town of Drs Finlay and Calder,—and on his arrival, finding that he concurred in my views as to the nature of the injury and the treatment to be adopted, I proceeded to trephine the skull at a point $1\frac{1}{2}$ inches posterior to the external angular process of the frontal bone, and 1 inch above the zygoma on the *right* side. This was done under chloroform on account of his restlessness. As soon as the trephine had pierced the skull, a profuse and persistent flow of blood took place—the quantity was guessed at between four and six ounces. By the time the disc of bone was removed, the flow of blood had to a great extent stopped. The dura mater was not opened, but it was seen and heard to flap synchronously with respiration, thus showing that it was detached for a considerable area round the opening in the skull made by the trephine.

From the time of his fall until the bone was pierced, less than an hour elapsed. A circular piece of decalcified bullock's bone was inserted into the trephine opening, leaving sufficient space for drainage, and the external wound was sutured after introducing a chicken-bone drainage-tube. The patient was now quiet, with much improved pulse and respiration, had no more convulsive seizures, and woke up at 6.30 the following morning, and wished to go to work. During the changing of the dressing on that day, which was needed on account of the amount of sero-sanguinolent discharge, he was irritable, and did not remember what had occurred; but from that time he was perfectly conscious, and made a recovery only interrupted on the twelfth day by a rise of temperature (103°·6 highest point), which continued for seven days. During this time no fresh head symptoms developed, except a slight stupidity on one day; the condition of the wound was all right; nor did repeated careful examinations reveal any visceral disease, nor ophthalmoscopic examination any congestion of the discs. In this connexion I should mention that, twelve years ago, he fell into the hold of a ship, and received a severe injury on his vertex, and was unconscious and delirious for six weeks, and was unable to work for about five months.

Dr Heron Watson kindly saw him during this period of elevated temperature, and gave a favourable prognosis, which has been amply justified.

At the date of his being shown at the meeting of the Medico-Chirurgical Society (2nd December) the trephine opening was closed by a disc of firm tissue united to the edges of the opening, so that no pulsation was felt. He still has a slight degree of facial paralysis, which has persisted since the fit on the evening of the accident, but it is now barely perceptible. He states that the giddiness he suffered from since his first accident, on rising up after stooping, has since this operation almost entirely disappeared.

He resumed work in the middle of December.

# VIII.—INTUBATION OF THE LARYNX IN LARYNGEAL DIPHTHERIA, WITH NOTES OF FIFTEEN CASES.

By G. Hunter Mackenzie, M.D., Surgeon for Diseases of the Throat and Nose to the Eye, Ear, and Throat Infirmary of Edinburgh; late President of the British Laryngological and Rhinological Association.

(*Continued from page* 627.)

Case VI.—Child, aged 1 year, under the care of Dr Wylie, 28th October 1889. This child was reported to have been suffering for a few days previously from bronchitis, on which laryngitis with marked dyspnœa had supervened. Intubation was performed with ease, and great relief to the breathing at once ensued. Nine hours after the operation he was found breathing and swallowing without difficulty; moist sounds had commenced to develop in the windpipe. He died fourteen hours after the operation, after having, according to the report of the family medical attendant, *breathed and swallowed without difficulty to the very end.* After death, the tube was found in the lower part of the trachea, and patches of membrane were found in the larynx.

So far as relief of the breathing was concerned, the operation in this case was successful. Death was due to one or other of those occult causes which are well known to affect children who are, or lately have been, suffering from diphtheria. The tube was forced into the trachea by unsuccessful attempts on the part of unskilled hands to use the extractor after death.

Case VII.—Boy, aged 1½ years, 6th December 1889. This child was reported to be suffering from "croup" (diphtheria of the larynx). He had had several severe laryngeal spasms; intubation was accordingly performed at 2 p.m., the tube being easily inserted on the first attempt. The breathing was immediately relieved, and became gradually easier as the day advanced. There was, however, considerable pyrexia (T. at 10 p.m., 105°); at the same time the child appeared to possess a fair amount of strength, and was breathing with great freedom. Wine was freely administered. *7th December.*—The child died somewhat suddenly at 1 a.m., *without having again presented any symptoms of laryngeal obstruction.* An inspection was not permitted.

In the treatment of this case it was decided to rely mainly upon nourishment by enemata, an opinion having been expressed in some quarters (which I did not share), that food administered in the usual way was apt, with the tube *in situ*, to slip into the respiratory tract, and there cause trouble. The remarks appended to the preceding case apply equally to this. Here was another case in which the breathing was completely and permanently relieved by intubation, and yet the child died.

CASE VIII.—Boy, aged 7½ years, under the care of Dr Wylie, 25th December 1890. An undoubted case of diphtheria of the pharynx, thence spreading to the larynx, with dry inspiratory dyspnœa, and suffocative spasms. Intubation was performed at 12 noon with some difficulty, but the tube was soon expelled by coughing. It was not re-inserted, as the patient now breathed with comparative freedom, and the respiratory sounds were moister. I did not again see the patient, in whom during the late afternoon laryngeal dyspnœa again developed. Re-insertion of the tube was not permitted by the relatives. He died at 9 P.M.

The difficulty in intubating in this case was owing to the presence of an abscess at the tip and under the nail of the operator's left index finger, which necessarily interfered with the power of guiding the tube into the larynx. The tube was not re-inserted immediately after expulsion on account of the ease to the breathing which had already ensued, and owing to the experience of some operators that a merely temporary insertion of the tube is sometimes sufficient to permanently relieve the breathing. Unfortunately in the present instance this did not prove the case.

CASE IX.—Boy, aged 6 years, under the care of Dr Brewis, 30th October 1890. Diphtheria of the pharynx and larynx, T. (8 P.M.) 104°. At 11 P.M. intubation was performed, with immediate and complete relief to the breathing, the child becoming at once cheerful and playful. 31*st October* 1891.—9 A.M.—The night's report was that the child had swallowed easily; the breathing had continued unobstructed; marked collapse with high temperatures (104°–107° F.) had, however, ensued from about 6 A.M. The patient sank and died fourteen hours after the operation, without the re-establishment of the difficulty in breathing.

A more satisfactory immediate result after operation than was obtained here could not have been desired. The same fatal collapse with high temperatures which characterized cases VI. and VII. developed in this instance.

CASE X.—Girl, aged 2 years, under the care of Dr Henry Hay, 3rd February 1891. Diphtheria of the pharynx and larynx. At 11.30 P.M. the pulse could not be counted, and great inspiratory dyspnœa was present. Intubation was at once performed, with immediate and marked relief to the breathing and strengthening and slowing of the pulse. 4*th February.*—The child has breathed freely all day, and is apparently going on well. She had slept well during the night. Brandy is being freely administered, a moderate degree of difficulty in swallowing is present. 5*th February.*—The child continues to do well. At 4 P.M. I considered it advisable to remove the tube, which had been forty hours in the larynx, and this I tried to do with the assistance of the child's father. The process of gagging and the insertion of the extractor, along with some struggling on the part of the little patient, and some difficulty in locating the blades of the extractor inside the very small tube, appeared to completely exhaust the patient, and induced a condition of death-like collapse. Artificial respiration was immediately resorted to, and produced a partial revival only, for the child never returned to her former condition. She died a few hours afterwards, without a recurrence of the symptoms of obstructed respiration.

This case illustrates the difficulty and results that may follow, or be induced by, the manipulations necessary to remove the tube in very young children. The difficulty of a withdrawal in such cases frequently surpasses that encountered during the act of insertion, and some modification of O'Dwyer's method and instruments in this respect is urgently demanded. In this case, until the removal of the tube was set about, progress had been most satisfactory, and its rapid termination under the circumstances now described was a great disappointment.

CASE XI.—Boy, aged 5 years (nearly), under the care of Dr H. Wylie. Diphtheria, complicated with pneumonia of the left lung. The breathing was exceedingly difficult, the child, in fact, being apparently almost dead. The first tube inserted appeared rather small, for it was immediately expelled by coughing; the next larger size of tube was accordingly used. During the interval between the insertion of the two tubes, it was observed that the breathing was easier, with an abundant purulent expectoration. The breathing continued to improve after the insertion of the second tube, and the little patient went off in sleep, of which he had had very little for two nights previously. He was stimulated freely by brandy. *22nd February.*—At 11.30 A.M., Resp. 56, T. 102°·5. Pulse quick but regular. Abundance of mucous râles were present in the throat (and tube?) He was reported to have swallowed very easily. The pneumonic lung was acting very imperfectly. 8 P.M.—Died without having evinced indications of marked respiratory obstruction.

This is another instance of death from other causes than respiratory obstruction.

CASE XII.—Boy, aged 4½ years—*22nd March* 1891. This patient was believed to be suffering from bronchitis and simple laryngitis, but as shreds of membrane were subsequently coughed up, there can be no doubt that he was the subject of diphtheria. Intubation was performed at 2.30 P.M. The breathing was immediately relieved. At 9.30 P.M., the child meanwhile having breathed with tolerable ease, the tube was withdrawn, but required immediate re-insertion on account of the increase of dyspnœa which followed its withdrawal. *23rd March*, 3 P.M.—Child doing fairly well, is breathing easily, and swallowing with the aid of a spoon. He is stimulated freely with brandy, port wine, and carbonate of ammonia. 10 P.M.—Cyanotic, with gurgling in windpipe (and tube?) 11.30 P.M.—Died, with indications of obstructed respiration. An inspection was not permitted.

The causes of death in this case were the general exhaustion of the disease, and the probable fresh formation and extension downward of the membrane, as in Case IV.

(*To be continued.*)

# IX.—ON CONGENITAL OBLITERATION OF THE BILE-DUCTS.

By JOHN THOMSON, M.D., F.R.C.P.E., Extra-Physician to the Royal Hospital for Sick Children; Lecturer on Diseases of Children, School of Medicine, Edinburgh.

(*Read before the Edinburgh Obstetrical Society*, 11*th November* 1891.)

(*Concluded from page* 616.)

8. *Post-mortem Appearances* (see Table II.)

(A.) *Peritoneum.*—A large quantity of ascitic fluid was found in two cases (Nos. 4 and 48), a smaller amount in No. 44, and a little effusion in several others—namely, Nos. 26, 27, 12, and 25 (in the last, however, it was probably post-mortem). The presence of adhesions or localized thickenings is noted five times (Nos. 5, 14, 18, 26, and 27).

In two cases (37 and 44) there was recent peritonitis, evidently secondary.

(B.) *Liver.*

(1.) The *size* is generally, but not always, more or less increased.

| | |
|---|---|
| This point is not mentioned | in 19 of the cases. |
| The liver is said not to be enlarged | „ 8 „ |
| „ said to be small | „ 1 „ |
| „ „ enlarged | „ 12 „ |
| „ „ much enlarged | „ 9 „ |
| „ „ unequally enlarged | „ 1 „ |

We find, as we should expect, that enlargement is more frequently noted in cases which lived a long time.

(2.) The *shape* seems usually to be unaltered, even in those cases in which the obliteration is said only to have involved one of the hepatic ducts. In one case, however (No. 25), in which only one duct was obliterated, the corresponding lobe of the liver was shrunken, and showed excess of fibrous tissue with cystic dilatation of the ducts in it, while the other lobe, the bile of which had free exit, was not affected in this way. It is interesting to note that in one of Charcot and Gombault's experiments on animals,[1] in which only one of the hepatic ducts was tied, the resulting cirrhosis was found to affect only the corresponding lobe of the liver.

(3.) The *colour* is most frequently dark green—almost always so when the children have lived long.

(4.) The *consistence* is not alluded to in 30 of the cases. Out of the 20 cases in which it is mentioned, the organ is said to have been tough in 14.

(5.) The *surface* of the organ is only mentioned 12 times; in 4 of these it was smooth, and in 8 finely granular.

(6.) The *bloodvessels* of the liver are described 20 times; in 16 they were normal, and in 4 there was obliteration of the portal vein. It is significant that all these 4 cases (Nos. 13, 14, 26, and 27) were probably syphilitic.

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[1] Charcot and Gombault, *Archives de physiologie*, iii., 1876, p. 273, Observation xv.

(C.) *Gall-bladder and Ducts.*—As these are the seat of the primary lesion in our cases, we shall examine their condition somewhat minutely.

(*a.*) Firstly, then, as to the *precise lesion* described in the various cases. Space will not allow of the exact descriptions being quoted, but an abridged account of them will be found in Table II., and a selection of them are sketched on Table III.

In the latter I have arranged, in a sort of order of sequence, diagrammatic representations on a small scale of the exact conditions of the gall-bladder, cystic, hepatic, and common ducts, and the duodenum, as described by the writers in a majority of the published cases. The others are not represented, either because they seem to have been exactly like one of those figured, or, in some cases, because so few particulars were given that it was not possible to say whether they differed or not. Where a part of the apparatus (*e.g.*, gall-bladder, cystic duct, etc.) is not mentioned in the description, I have represented it as normal. Of course, in many of the descriptions, much that one would have liked to know is left out, and what is given is not always very intelligible; but I think that the main points will be found to be fairly and accurately represented in the Table, so far as they can be ascertained.

In studying this diagram, we may look first at the

(*b.*) *Situation of the Obliteration.* We find that this varies almost indefinitely.

Among our 50 cases there are examples of almost every conceivable variety. We may divide them roughly into four groups:—

(1.) Those in which there is no passage whatever leading from the liver to the duodenum, although the gall-bladder and cystic ducts remain more or less normal.

(2.) Those in which there is at least one permeable canal leading from the liver into the gut, but no exit from the gall-bladder, or even nothing to represent that organ.

(3.) Those in which both cystic and hepatic ducts are obliterated.

(4.) Those in which the obliteration has occurred at a variable point below the junction of the cystic and hepatic ducts.

Now this great diversity in the precise situation of the lesion is a point of considerable interest, and of itself throws some light on certain aspects of the etiology. Were the obliteration due simply to an arrest of the normal process of development of the parts, as has often been suggested, we should certainly expect that in most, if not in all, of the cases the obliteration would be found in or about the same situation. Again, were the local cause of the blocking an inflammatory process set up inside the lumen of the tube by a concretion or other local source of irritation, as others have thought, we should in the same way have expected a tendency for the obliteration to be situated about the same place in different cases.

We get, therefore, at the outset an impression that the cause is one which is not localized at any "seat of election," and therefore most probably either acts on the tubes from outside, or results in a process affecting their walls for a considerable extent before actual obstruction occurs.

(*c*.) If we next look at the diagram again to see what can be learned from it as to *other secondary changes in the external excretory apparatus*, we are again struck with the great variety met with. The significance of these differences, however, are difficult to determine; and, indeed, the anatomical descriptions are scarcely sufficiently full to allow us to attach much weight to the figures in this connexion.

I shall therefore only refer to a few points of interest.

(1.) When the cases are grouped together according to whether jaundice is said to have been present at birth, or only came on later, no special difference is found in the nature of the malformation in the two groups.

(2.) We find, as might have been expected, that the most severe malformations are almost all met with in cases which had lived several months. Inflammatory action evidently goes on spreading after the obliteration is complete, and affects the rest of the ducts and the gall-bladder—at least in many cases it does so. In Dr West's case (No. 1) this was so to a marked extent. For when the child was 3 weeks old, the gall-bladder could be felt through the abdominal wall, "the size of an egg;" and, when the post-mortem took place nine or ten weeks later, there was nothing of it left but two blind sacs—one the size of a pea, and the other twice as large (see Table III.) The inflammation set up in the bile-ducts of adults by an impacted stone spreads in a similar way.[1]

(3.) Dilatation of the canal above the point of obliteration is by no means invariably present (*e.g.*, Nos. 2 and 17), although it may occur to an enormous extent (No. 23). When present, it may either take the form of a mere dilatation of the ordinary passages (Nos. 11 and 38), or there may be a more or less abrupt and saccular enlargement of the end of the tube (Nos. 33, 6, and 23).

(4.) An obliterated duct or portion of a duct may remain as a fibrous cord or may entirely disappear.

(5.) The obliteration of the upper end of a duct does not necessarily cause the same of the lower end (Nos. 13, 16) even after the lapse of four and a half months (No. 16).

(*d*.) *The Contents of the Gall-bladder* vary very much, from "thick syrupy bile" to clear watery fluid; but we notice that they are almost always described as colourless if the child lived more than a month. In all the cases where it is definitely stated that the motions were colourless from the first (with one exception, No. 11) there was no bile found in the gall-bladder.

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[1] Courvoisier, *loc. cit.*

(D.) *Microscopic Appearances of the Liver.*—The facts given under this head are very few.

Forty of the cases seem not to have been examined microscopically; in one case examined (Nunneley's) cirrhosis is not mentioned; in the remaining 9 cases, cirrhosis was present. It seems probable that biliary cirrhosis always occurs if the child lives long enough. The only apparent exception is Nunneley's case (No. 12), in which the description is not full, and no mention is made of cirrhosis, but it is not said that it was not present.

Several of the writers describe the masses of inspissated bile in the small bile-ducts, and some mention having seen fragments of the same substance inside the cells.

(E.) *The Spleen.*—In 12 of the cases the spleen is mentioned. In one of these it was small, and in one not enlarged; in all the others it was large—generally very large.

The spleen usually, though not invariably, enlarges in animals after ligature of the common duct.[1] The cause of this does not seem to be settled; possibly it may be explained in the same way as the occurrence of the hæmorrhages (see p. 614). In 7 of the cases with enlarged spleen hæmorrhages are noted.

(F.) *Other Morbid Conditions.*—These are very various, and do not appear to have any direct connexion with the liver-affection. In many of the cases pulmonary complications seem to have been the immediate cause of death.

## III. CASES OF INFANTILE JAUNDICE WITH SYMPTOMS SIMILAR TO THOSE OF OBLITERATION OF THE BILE-DUCTS, BUT WITH PERVIOUS DUCTS.

A considerable number of instances have been reported in which children with symptoms exactly the same as those of our cases were found, post-mortem, to have diseased livers, but in which no mention is made of the state of the bile-ducts. These cases are, of course, of no use in our present inquiry.

In a few, however, a more or less careful account of the appearances of ducts which were pervious is given. I have tabulated (Table IV.) a few of the more satisfactory of these, and it is very interesting to compare their details with those of our other cases. In doing this one is struck with the close resemblance of the two sets of cases. In fact, the resemblance is such that we cannot avoid the conclusion that they are just examples of different stages or degrees of the same disease.

The most striking point of difference is the shorter duration of life in the cases with pervious ducts (17 days average, as against more than $2\frac{1}{2}$ months); and this goes to confirm the idea that these are merely earlier cases of the same morbid condition—before the blocking has been completed.

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[1] J. C. H. Mackay, *loc. cit.*

In the only one of the cases where the condition of the ducts is exactly described (Cheyne's), their walls are said to have been thickened and white and contracted "like those of arteries." Possibly this may have been so in the other cases also, for nothing is said about the walls or calibre of the ducts in any of them, and they are not stated to have been normal. The fact of the ducts in any case being permeable at the post-mortem does not, of course, prove that they were practically so during life, for it is well known that the pressure of tumours, etc., on the ducts causes complete stoppage of the passage of bile long before absolute obliteration is produced, so that, at the post-mortem, probes or a stream of water can pass through a duct that was impervious to bile during life. Also, catarrhal conditions of the mucous membrane may give rise to utter blocking during life, and yet after death there may be no actual obstruction.[1]

## IV. Pathology of the Lesion of the Ducts.

The lesion has been ascribed to three different morbid processes, either acting separately or in combination, namely—

1. *Peritonitis and its results*, acting on the ducts from outside, and either compressing them or being a source of inflammatory action, which spreads afterwards to their walls.
2. *An inflammatory or other lesion of the ducts themselves.*
3. *An arrest or defect of development.*

And, further, various predisposing causes have been described as accounting for these morbid processes, namely—

4. *Congenital syphilis.*
5. *Digestive disturbance on the part of the parents.*
6. *Injuries or exposure to cold*, either of the mother or child.
7. *Erysipelas* of the child.

Let us consider in order these possible factors in the etiology.

1. *Peritonitis.*—In 1838, Sir J. Y. Simpson collected together in a most interesting paper[2] a series of cases "to prove that peritonitis forms a common variety of fœtal disease, and probably constitutes one of the most frequent causes of death of the fœtus during the later months of pregnancy;" and a good deal has been written since to the same effect.

The following facts regarding it may be mentioned:—It may begin early in intra-uterine life (Sir James had found it in the third month), or during the later months of pregnancy, or it may arise within the first few days after birth. The exact time of onset must often be impossible to discover, owing to lack of symptoms. Its distribution may be general, or it may occur in patches.

It is certainly often due to syphilis; but it may also be caused, quite apart from that disease, by chill or over-exertion on the part of the mother, or, in new-born children, by erysipelas. It may be set up by many local causes in the child, such as rupture of the bladder or strangulation of the intestine, or arteritis umbilicalis.[1]

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[1] See Wickham Legg, *Bile, Jaundice, and Bilious Diseases*, p. 252.

[2] Simpson, *Edinburgh Med. and Surg. Journ.*, v., 15, 1838, pp. 390–414.

We not uncommonly meet with cases in which it has existed to a considerable extent without there having been any symptom noticed during life.[2] It may be, and often is, fatal either before or after birth. If recovered from, it often leaves adhesions, and these are a not very uncommon cause of malformations of the intestine and other viscera.[3]

There are several considerations apparently in favour of a localized form of this disease (peripylephlebitis) being the cause of obliteration of the duct in some of our cases. As we have already seen, adhesions are mentioned as having occurred in four of the cases, and some fluid was found in the peritoneal cavity in a few of the others. The fact of the neighbouring bloodvessels being obliterated by fibrous tissue in several of the cases (Nos. 14, 15, 26, and 27) proves, of course, the previous occurrence of peritonitis in them.

Although, however, we have facts which *seem* to point pretty strongly to peritonitis having been the cause in a small number of the cases, we have stronger grounds for thinking that the large majority could not have been so produced. Of these I may mention a few—namely, the absence of any traces of past peritonitis in them; the fact of the lesion being limited to the gall-ducts or gall-bladder, and not affecting the bloodvessels and other neighbouring structures; and, lastly, the consideration that this theory of the etiology of these cases affords no explanation of the recurrence of the disease in families.

We must also remember that, even if peritonitis is shown to have existed, this does not prove it to have been the cause; in two of our cases (Nos. 37 and 44) there was peritonitis present which was certainly secondary to the malformation of the ducts. It seems very probable that the affection of the peritoneum is always secondary to that of the ducts, and very likely it is a result of it.

2. *Inflammatory or other affections of the ducts themselves* have been suggested as the cause by several writers. Unfortunately, microscopic examination of them does not seem to have been made in any of the cases. A few instances have been published in which a real or imaginary cause of obstruction of the bile-ducts in an infant was found, but these do not help us very much in determining the usual causation of our cases.

The lesions of the ducts which have been described as possible causes of obstruction are as follows:—

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[1] Max Runge, *Die Krankheiten der ersten Lebenstage*, Stuttgart, 1885, p. 84.

[2] Billard, *Traité des Maladies des Enfans*, 1837, pp. 479–483.

[3] Ahlfeld, *Archiv f. Gynæc.*, v. p. 236; and Küttner, Virchow's *Archiv*, Bd. 54, p. 37.

(*a.*) *Catarrh of the mucous membrane,* followed by erosion and adhesion of the bared surfaces, is naturally the morbid condition first thought of. This is a recognised cause of blocking, and even of entire obliteration of the ducts in adults.[1] In them the commonest cause of it is, of course, the irritation of a calculus; but it is also set up by syphilis, and it is said that other impurities in the blood may give rise to it. The position in which obliteration from this cause usually occurs is the pars intestinalis of the common duct.[2]

(*b.*) *Gall-stones* must be extremely rare in infants, but one case has been put on record;[3] and another case, in which calcareous concretions were met with in a young child's liver, has been described by Wronka.[4]

(*c.*) *A plug of inspissated bile* was found in the bile-duct in one carefully described case,[5] and was supposed to be the cause of the obstruction which had ended in death.

(*d.*) One case of fatal obstructive jaundice in a young infant[6] has been described as due to "*spasmodic stricture of the duct;*" but the writer gives no facts in support of his hypothesis, and it is difficult to see how it can be entertained.

(*e.*) *Gummatous inflammation of the walls of the ducts* has been described by Beck[7] in one case, in which there was exudation confined to the immediate neighbourhood of this region along with syphilitic cirrhosis of the liver.

In considering these morbid conditions as to their influence in causing obliteration, the second, third, and fourth may be put aside on account of their extreme rarity or dubiousness. *Gummatous inflammation* may also be dismissed, because, although it seems a likely enough lesion to occur under favourable conditions, yet we could not expect to meet with it so often entirely apart from any signs of syphilis elsewhere, and without there being gummatous or interstitial syphilitic hepatitis at the same time.

*A catarrhal condition of the ducts* seems, *à priori*, quite a possible cause of the malformations met with. We do not, indeed, know of any general influence (except syphilis) capable of setting up catarrh at that period of life; but then we are familiar with the fact that ulcers for which no cause can be assigned sometimes occur in the stomach and duodenum in very young infants,[8] although they are very rare. The cicatrization of a duodenal ulcer might possibly explain the malformation in such a case as Oxley's, No. 23 (see Table III.)

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[1] Cornil and Ranvier, *Manual of Pathological Histology* (Transl.), vol. ii. p. 409.

[2] Von Schüppel, Ziemssen's *Cyclopædia* (Transl.), ix., p. 583.

[3] Lieutaud, *Mém. de l'Acad. Roy. de Méd.*, 1847, xiii., p. 264.

[4] Wronka, *Beiträge z. Kenntniss der angeb. Leberkrankheiten*, Inaug. Diss., Breslau, 1872.

[5] A. D. Campbell, *Northern Journal of Medicine*, Aug. 1844, p. 237.

[6] Waring Curran, *Medical Press and Circular*, Sept. 9th, 1868.

[7] H. Beck, *Prager medicin. Wochenschrift*, 1884; quoted in Schmidt's *Jahrbuch*, 1884, p. 204.

[8] Henoch, *loc. cit.*, vol. i. p. 66.

A more likely way in which catarrhal inflammation of the ducts might lead to obliteration of their lumen is that a thickening of their walls might be produced by the inflammatory action spreading to the fibrous tissue there.

It seems quite possible that a congenital malformation might exist which, although not entirely obliterating the lumen of the duct, might occasion so much irritation from interference with the free outflow of bile as to cause a chronic and progressive catarrh.

3. *Arrest or defect of development of the ducts* (Vitium primæ formationis).

When cases of the condition we are considering are referred to in general works on medicine and pathology they are usually put down to this origin, and many of the writers who have reported cases have regarded the lesion as of this nature.

There are certain facts which constitute strong arguments in favour of this etiology. Of these, the following two are the most worthy of note:—

*Firstly,* There can be no doubt that various malformations of the liver and bile-ducts do occur which are certainly of this nature. For example, congenital absence of the gall-bladder has been frequently described,[1] and some of the cases were due to arrest of development, although many were probably of inflammatory origin. Again, Wenzel Gruber[2] has published a case in which a forked cystic duct was found; and Konitzky[3] has described another, in which the common duct had an unusually long and curved course, and opened into the middle of the horizontal portion of the duodenum, its lumen being narrowed. O. Witzel,[4] also, has published notes of an infant born with a large number of congenital abnormalities, in whom, in addition to hemicephalus, situs viscerum inversus, six fingers on each hand, etc., there was a cystic condition of the liver and complete impermeability of both the cystic and common ducts. Finally, in two of our own tabulated cases there were other developmental defects observed—namely, in Heschl's, absence of the bile-ducts in the liver-tissue; and in Professor Simpson's, want of the Spigelian and quadrate lobes.

*Secondly,* The frequency with which this exceedingly rare condition affects several members of the same family is very strongly in favour of this view, and indeed it seems difficult to explain it otherwise. It has been suggested[1] that this reappearance of the disease in the same family might be explained by supposing a common syphilitic taint. This suggestion, however, cannot be accepted, for we never find a tendency for an extremely rare manifestation of syphilis to recur four or five times in a family without any of the common symptoms of that disease being present at the same time.

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[1] For references see Courvoisier, *loc. cit.*, p. 139 ; Meckel, *Pathologische Anatomie*, i., p. 606; Förster, *Die Missbildungen des Menschen*, Jena, 1861 ; and Cnopf, *Münchener med. Wochenschrift*, 28th April 1891, p. 307.

[2] Wenzel Gruber, Virchow's *Archiv*, lxiii.

[3] G. Konitzky, Inaug. Diss., quoted in Virchow and Hirsch's *Jahresber.*, 1888, ii., p. 290.

[4] O. Witzel, *Centralblatt für Gynæcologie*, 1880, p. 561.

The developmental defect may be supposed to be of various kinds. For example—(*a.*) It may be regarded as the sole cause of the obstruction—"an incomplete hollowing out of the originally solid bile-ducts" occurring, as Lotze supposes possible. (*b.*) Again, Cheyne regards the narrowing of the bile-ducts in his case to be secondary to an impermeable thickening of the beginnings of the hepatic duct. (*c.*) Lastly, we may imagine the defect to consist in a congenital narrowness or irregularity of the lumen of the ducts of such a nature as to render them unnaturally liable to disease from its interference with the proper performance of their function.

Now, against the first of these hypotheses there are two important arguments. *Firstly,* such a developmental defect would necessarily occur at a very early period of intra-uterine life, and it is, therefore, excluded in all the cases where any coloured meconium was passed; and, *secondly,* as already pointed out, the great variety in the situation at which the obliteration occurs seems strongly against this etiology.

The last hypothesis, however, is not open to these objections, and seems to me, indeed, to afford a very necessary help in explaining the causation of a large proportion, if not all of the cases.

4. *Congenital Syphilis.*—The majority of those who have written on the pathology of this condition have ascribed it to syphilis. A few have had good reasons for so doing, but most seem to have given this explanation merely for lack of a better, or, at least, without any adequate proofs of the presence of the taint. The mere fact of the presence of cirrhosis of the liver has been erroneously regarded by several writers as a proof of syphilis.

*A priori,* we should certainly regard it as a very probable factor in the etiology, but when we study the details of the published cases we find very little in support of the idea. The facts in favour of syphilis as a cause are as follows:—*Firstly,* Five of the parents of the affected children were certainly syphilitic. *Secondly,* Six, possibly nine, of the children themselves showed signs of syphilis.

On the other hand, the case against syphilis is certainly a strong one. The main points are—*Firstly,* Several of those who have reported cases (notably Mr Morgan) seem *quite* sure that the parents were not syphilitic. *Secondly,* Out of the 96 parents of the 50 children whose cases are tabulated, syphilis was discovered only in 5. Of course we do not forget the difficulty of ascertaining the presence of the taint; but still, when we take into consideration the great probability that in these cases syphilis would almost always be inquired about, such a small proportion seems strongly against the idea that the lesion is a manifestation of syphilis. *Thirdly,* Although many facts are given about the other children in the same families as the patients, in no single case is it mentioned that any of them suffered from any recognised symptom of congenital syphilis. *Fourthly,* 23 of the patients lived three months or over, and yet only two of these are said to have had any symptoms which could be put down to syphilis.

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[1] Goodhart, *Atlas of Pathology,* New Sydenham Society, fasciculus v.

*Fifthly,* and lastly, It is interesting to note that when we group together these six certainly, and three possibly, syphilitic cases (namely, Nos. 14, 15, 25, 26, 27, and 46, and Nos. 6, 13, and 18), and compare them with the other 41 cases, we find certain interesting points of difference. This small group contains three of the five children who were prematurely born, all but one of the cases in which there were peritoneal adhesions, and all those in which the bloodvessels were obliterated.

These considerations justify us, I think, in believing that congenital syphilis is not an element of essential importance in the etiology of these cases.

Is it not possible that the presence of inherited syphilis may cause an unusual liability to peritonitis, so that an irritation which in a healthy infant or fœtus would set up inflammation confined to the ducts, may, in a syphilitic one, involve the peritoneum also more or less extensively?

5. *Digestive Disturbance on the part of the Parents.*—As already mentioned (p. 606), this has been seriously suggested as a possible cause by two writers, but it scarcely needs further discussion.

6. *Injuries or Exposure to Cold,* either of the mother when pregnant or of the child, are recognised causes of peritonitis in the latter. And as the circumstances attending birth are sometimes such as to occasion both, they seem worthy of consideration here. On looking over the cases, however, we find that there are no facts at all to suggest the probability that these causes of disease were in operation in any number of the cases.

7. *Erysipelas* also deserves only a short notice. In one case (No. 31) it is mentioned as having occurred and been followed by peritonitis; in another (No. 44) it may possibly have been the cause of death. There seems, however, no reason to suppose that it ever bears a causal relation to the local lesion of the bile-ducts.

## CONCLUSION.

Let us see, then, what material we have gathered in the course of our investigation towards answering the two questions which we put at the outset.

I. *What is the etiology and pathology of these cases?*

The main conclusions we have arrived at with regard to these points may be summarized as follows:—

1. In the great majority (if not all) of the cases there is, to begin with, a congenital malformation of the bile-ducts due to defective development.

2. This malformation probably affects a considerable extent of the walls of the ducts, and may consist in narrowness of their lumen.

3. The interference with the outflow of bile thus caused, gives rise to catarrh, and finally to blocking and obliteration of the ducts, owing to the inflammatory process spreading to the walls of the ducts and gall-bladder.

4. This progressive inflammation goes on slowly spreading, the local condition getting gradually worse during many months, if the patient lives.

5. The obliterated ducts or gall-bladder, or portions of them, may entirely disappear, not even leaving a distinct band of fibrous tissue to indicate their original position.

6. The obliteration generally becomes complete at an early, but variable period of intra-uterine life, but occasionally it does not occur till after birth.

7. In a few cases the inflammatory process spreads to the peritoneum, and possibly the presence of inherited syphilis may favour this extension. The occurrence of peritonitis is probably always secondary to the blocking of the ducts; and syphilis has nothing to do with the original lesion in them.

8. When the lumen of the duct is so far encroached upon as to obstruct the free passage of bile into the intestine, "biliary" cirrhosis of the liver begins, which as it goes on causes increasing interference with the most important functions of that important organ. The result of this is the setting up of a sort of chronic blood-poisoning which causes vomiting, spontaneous hæmorrhage, and convulsions, and gradually leads to emaciation, diminished vitality, and death.

II. *How are the various symptoms to be explained?*

A few suggestions as to the causation of some of the more interesting of the clinical phenomena may be recapitulated as follows:—

1. The reappearance of the disease in several members of the same family can only be explained by the theory that a congenital defect of development is at the root of the mischief.

2. The fact that the onset of the jaundice is not at all contemporaneous with the blocking of the bile-ducts, and usually only begins several days after birth, is best explained by taking into account the effect on the liver-cells exerted by the enormous changes in the hepatic circulation which occur at birth in new-born children.

3. The presence of coloured meconium in some cases, and of only

white discharge in others, is due to the blocking of the ducts having occurred at different periods of intra-uterine life in the two groups.

4. When green matter is passed along with the colourless motions during the progress of the case, this is probably due to the chemical action of the contents of the bowel on mercury which has been administered to the child.

5. The tendency to spontaneous hæmorrhages is probably due to the occurrence of a state of chronic blood-poisoning; the arrest of the outflow of bile damaging the liver so that its functions are interfered with, and it lets past into the circulation organic products of digestion of a poisonous nature.

6. The enlargement of the spleen, the convulsions, and the vomiting, are probably more or less connected with this same condition of blood-poisoning.

7. The fact that the children live as long as they do, and do not usually become emaciated early, is to be explained by the theory that the presence of bile in the bowel is not very necessary for digestion. When the nutrition and general health do begin to suffer, it is probably due to the interference which the secondary changes in the liver-tissue are causing with the more important functions of the organ.

# Part Second.

## REVIEWS.

*Abdominal Surgery.* By J. Greig Smith, M.A., F.R.S.E., Surgeon to the Bristol Royal Infirmary. Fourth Edition. London: J. & A. Churchill; Bristol: J. W. Arrowsmith: 1891.

A surgical work that has attained the honour of a fourth edition in the fifth year of its existence is independent of criticism. It is in process of translation into French, German, and Italian. The reason of its great success is not far to seek. It is a book full of real practical information of the kind that becomes useful to the operating surgeon; for, in simple language, it tells very much how the author has treated his own cases, and attained his well-deserved success as an operator on the abdomen.

One new word suggested by Harris of Philadelphia is used in most places in this volume (not in all) as a substitute for an awkward and incorrect word, laparotomy. Cœliotomy is the new word, which is certainly less incorrect: neither is very elegant. But belly-cutting is more accurate than flank-cutting, to describe an operation which is generally performed in the middle line of the abdomen.

On the vexed question of antiseptics, Mr Greig Smith seems loath to part with the last rags and tatters of the carbolic fetish, and still hints at the use of the steam spray. He sees its evils, but still casts a longing, lingering gaze of affection at the monster. The section on sponges is most excellent and instructive. On the best anæsthetic the author does not dogmatise, but makes an excellent observation: "In all cases, I believe that safety and efficiency depend more on the capacity of the administrator than on the nature of the anæsthetic." His after-treatment of operations is based on common sense, tempered by saline purges in cases of peritonitis in its early stage. The chapters on ovarian tubes and ligaments, on the non-gravid and gravid uterus—bring up to date the surgery of these organs, which seems now to have attained a very high measure of perfectedness, both in methods and results. Operations on the stomach and intestines form the subject of two chapters of great interest. Operations on the viscera are becoming more and more ambitious, complicated, and daring. Pylorectomy, gastro-enterostomy, and jejunostomy are the names of procedures which were utterly undreamed of by the great surgeons of the first half of this century, and the literature of it is practically the outcome of the last decade. Begun by Billroth and Loreta, their example has rapidly spread, and British surgeons are now, notwithstanding their proverbial caution, emulating their continental and American brethren in new procedures for the relief of disease. Kidney-excision, -section, and -fixation, are discussed in another most excellent chapter. The surgery of the liver and gall-bladder is as yet contained in much smaller compass than that of the kidneys, but it is daily increasing in bulk and importance, and will probably be one of the fields in which operative surgery is to make further progress in the next decade. The awful mortality after excision of the spleen for disease, contrasted with his wonderful success in cases where it has been previously healthy and only wounded or prolapsed, is well known. Mr Greig Smith believes, and rightly, that the success and failure of operation on the spleen depend much on the treatment of the pedicle. Operations on the pancreas, omentum, mesentery, cysts, and suprapubic cystotomy, are treated through three most interesting chapters. The last chapter on abdominal injuries and inflammation is perhaps the most practically important in the whole of this most excellent and practical book. Early and free incisions with careful examinations of wounded intestines, so as to allow of the most careful and accurate toilet of the peritoneum, and closure by sutures of any apertures caused by bullet or sword. In peri-typhlitis or (as it is now generally called) appendicitis, our author recommends incision over or to the inside of the inflamed part down to the peritoneum. Then by careful, gradual teasing of the parts with blunt instruments to expose the abscess, in which almost invariably will be found the ulcerated or perhaps gangrenous appendix. Free drainage of the wound after removal of the appendix, either by ligature, or by excision and subsequent suture of the stump, almost invariably results in a cure.

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## TABLE II.

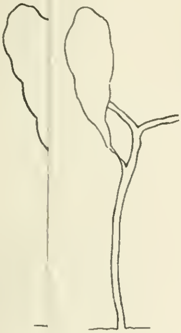
| No. Case | R[illegible] | Siz[illegible] | [illegible]gh | [illegible] | Its Surface and Capsule | Perihepati[illegible] | Its [illegible]nsistence | On Sec[illegible] | Gall-bladder | Contents | Cystic Duct | Hepatic Du[illegible] | [illegible]mmon Duct | Duoden[illegible] | Bloodves[illegible] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | Dark [illegible] green | Finely granular, not thickened | None. | Very tough | Creaks, dark-green, great excess of fibrous tissue | Small, flaccid. | Brownish mucus. | Patent. | Impervious, greatly dilated, forming a long sinus | Patent, small. | | Normal |
| [illegible] | [illegible] | Very large. | [illegible] | | | | | | Replaced by two small blind sacs | Greenish tenacious matter | Absent | Impervious, and greatly dilated | | | |
| [illegible] | M[illegible] | [illegible]lly enlarged | | [illegible] | | No thickening round the ducts | Normal | Tissue healthy | Not larger than a pea | Mucus, and no bile | Patent, but empty | Patent, but empty | Replaced by a fibrous cord for [illegible] than half an inch | No opening into bowel | Normal |
| | L. Smit[illegible] | | | [illegible] | | | Increased | | Rudimentary | | | Absent | Absent | No opening | |
| [illegible] | Heu[illegible] | [illegible] smaller [illegible] | | Olive green | | | | | Rudimentary. | | | Not a trace of bile ducts. | | No opening | |
| [illegible] | Murchis[illegible] | | | Jaundiced | | A few fibrous adhesions | | Ducts dilated | Extremely small and collapsed | A few drops of colourless fluid | Dilated, otherwise normal | Same | Replaced by areolar tissue. | Opening of duct would not admit a probe | |
| | W[illegible] | [illegible] | | Deep olive green | Granular | | | | Shrunken | A small amount of yellow fluid | Opens into a cyst the size of a largish marble | Also open into this cyst | | Papilla not perforated | Normal |
| | [illegible] | [illegible] lar[illegible] | [illegible] | [illegible] dark green | Finely granular, not thickened | No adhesions | Tough | Creaks, excess of fibrous tissue | Distended | Non-biliary mucoid fluid. | Smaller than normal | No trace of either | Pervious | Opening of duct normal | Normal |
| | Ash[illegible] | | [illegible] | [illegible] green | Finely granular | | Fibroid | Dark green | Rudimentary | | | No trace, lost in fibroid tissue | No trace, lost in fibroid tissue | | Normal |
| [illegible] | [illegible] | | 4[illegible] | | | None | | | | | | Left duct split into threads | All right down to a few lines from the bowel, where it is constricted. | Contained no bile | Normal |
| [illegible] | Wilks | [illegible] | | [illegible] dark green | | | | | Lumen only large enough to hold a bristle. | | | Bile ducts totally obliterated | Only patent in part inside pancreas | Opening of duct normal | |
| [illegible] | [illegible] | | | [illegible] deep | | | | | Distended to the size of a small hen's egg | Full of fluid bile. | Enlarged | Enlarged | Impervious, the lower part a solid cord | | |
| [illegible] | [illegible] | | | Dark [illegible] | | None | Firm | Ducts not obvious | Very small | A little colourless mucus | Pervious | Replaced by slender impervious fibrous cords, a dilatation on left | Pervious | No yellow colour | Normal |
| [illegible] | [illegible] | [illegible] | | Olive green | Smooth, diffusely thickened | | Tough as leather | Ducts dilated, cirrhosis. | Replaced by a thick solid cord, containing two cysts like peas | Filled with clear fluid | Nothing to represent it | A dilated duct about an inch long | Nothing to represent it | Papilla present, but only pervious for two lines | Normal. |
| [illegible] | [illegible] | [illegible] | | | Some thickened places on capsule | | Soft | | Filled | Tough, deeply greenish yellow mucus | Changed into an irregular mass of fibrous tissue | Same | | | Probably obliteration of portal vein and hepatic artery |
| [illegible] | [illegible] | [illegible] | | | Thickened and opaque | | | | Filled | Normal looking bile | | Bile-ducts mere cords with no lumen | | All the intestine coloured with bile | As above |
| | [illegible] | | | | Thickened | | | | Very full | Apparently normal bile | Only patent for a few lines. | Only pervious at commencement | Only pervious at end | | |
| [illegible] | [illegible] | | | | Normal | None | | | Smaller than normal | | Normal | Normal | Obliterated in most of its course | | |
| [illegible] | [illegible] | [illegible] | | Dark [illegible] green | With prominent granulations | Adhesions round gall-bladder | Almost cartilaginous | Dark green, cirrhosis | Flaccid, whitish grey in colour, fixed by cicatricial tissue. | Clear, thin, slightly acid mucus | Replaced by a few small solid cords | Right pervious, left becomes a solid cord | Pervious, but very narrow | | Normal |
| [illegible] | [illegible] | [illegible] | | Brownish green | | | | | Replaced by solid cord half a line thick, with end enlarged. | | | Quite absent | Quite absent | Papilla present, but blind | Normal |
| [illegible] | [illegible] | | | Jaundiced | | | | | | A little greyish-yellow mucus | | | Quite closed | | |
| [illegible] | [illegible] | | | Faintly jaundiced | | | | | | Much dark greenish-brown bile | Became obliterated near gall-bladder. | Normal | Pervious | Contained reddish brown bile | |
| [illegible] | [illegible] | [illegible] enlarged | | | | | Very [illegible] | Creaks | Replaced by blind tube 1½ × 1½ ctm., with two hour glass contractions. | Clear, watery, sticky fluid. | Solid white cord | No trace | No trace | | |
| [illegible] | [illegible] | | | | | None | | | Of normal size | No bile | Opened into cyst the size of a cocoa-nut | Same. | | Papilla present, but impervious | Normal |
| [illegible] | [illegible] | Enlarged | | | | | Tough | Peculiar striated appearance | Atrophied, the thickness of goose quill | | A fibrous cord | Same | Same | Contents not tinged with bile | |

TABLE II—*Continued*

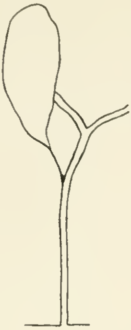
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | Its Surface and Capsule | [illegible] | Its Consistence | [illegible] Section. | Gall bladder | Contents | Cy[illegible] | Hepatic [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | | [illegible], brain like | | | Left lobe normal, right lobe composed of fibrous tissue, and hollowed into cysts | Collapsed, but patent | | A fibrous cord | [illegible] normal, right a fibrous cord | [illegible] | | Normal |
| [illegible] | Sch[illegible] | [illegible] | | Dark [illegible] green | Smooth | Th[illegible] connective tissue [illegible] portal vein | Soft and [illegible] | Increase of fibrous tissue | | [illegible] | A hard cord | A hard cord | A h[illegible] | | Portal vein obliterated by fibrous tissue. |
| [illegible] | [illegible] | [illegible] | | Dark green | | Same | Soft and flabby | | | As above | As above | As above | As above. | | As above |
| [illegible] | [illegible] | [illegible] | | Greenish grey, [illegible] yellowish | Granular, nowhere markedly changed | None | Leathery, extremely tough | Yellowish colour, no dilatation of bile ducts | Conical in shape, very thick walls, no outlet | A brown [illegible] | Impervious near gall bladder | [illegible] known | Wider than normal, obliterated towards duodenum | | Normal |
| [illegible] | [illegible] | | | [illegible] | | | | | Quite full | Thin colourless fluid | Completely closed | | | | |
| [illegible] | [illegible] | | | | | | | | Distended | Clear yellow fluid. | Closed. | | | | |
| | [illegible] | [illegible] | | [illegible] of burnt umber | | | Softer than usual | | Very small and collapsed, no outlet | A little mucus, like gelatine | Absent | | Absent | | |
| [illegible] | [illegible] | [illegible] | | | | | | | Not to be found | | | No bile duct found. | | | Perfectly normal. |
| | [illegible] | [illegible] | | [illegible] | | | | | Distended | Greenish yellow bile | Patent | Patent to beyond junction with cystic duct, [illegible] | | | |
| [illegible] | [illegible] | | | [illegible] coloured, [illegible] with blood | | | Friable | | Flaccid | A drachm of serous fluid | Impervious | Same | Same | | All umbilical vessels pervious |
| [illegible] | [illegible] | | | [illegible] | | | | | Partially filled | A little gelatinous fluid | Apparently closed | Apparently closed | [illegible] | | As above |
| | [illegible] | [illegible] | | Apparently normal | | | | | | | | Bile ducts impervious | | | |
| | [illegible] | [illegible] | | Engorged | | [illegible] | | | Filled | Blackish syrupy bile | Evidently constricted | Normal | A fibrous cord like band | | |
| | [illegible] | [illegible] | | Congested | | | | | Very much distended | Syrupy bile | Slightly enlarged | Slightly enlarged | Distended, and terminated abruptly before reaching intestine | | |
| [illegible] | [illegible] | | | | | | | | N[illegible] | | | No duct leading from liver to duodenum | | | |
| [illegible] | [illegible] | | | | | | | | | | | Terminated blindly | | No bile entered intestine | |
| [illegible] | [illegible] | | | | | | | | | | | As above | | As above | |
| [illegible] | [illegible] | | | | | | | | | | | | Duct imperforate | | |
| [illegible] | [illegible] | [illegible] | | | | | | | | | Impervious | Impervious | | | |
| [illegible] | [illegible] | [illegible] | | | Covered with yellow lymph | [illegible] | | | [illegible] | | | | Normal, entered liver without dividing | Normal | Normal |
| [illegible] | [illegible] | [illegible] | | Dark [illegible] | Not thickened | | Firm | Looked [illegible] | [illegible] | Empty | A mere cord | | A mere cord, coming to an end below | | |
| [illegible] | [illegible] | [illegible] | | [illegible] | [illegible] | | [illegible] hard | [illegible] | Absent, replaced by dense cicatricial tissue | | | | Ends blindly in cicatricial tissue | Intestine normal | |
| 41 | [illegible] | | | | | | | | | A small quantity of bile | An impervious cord | | An impervious cord. | | |
| [illegible] | [illegible] | [illegible] | | | Smooth | | | Brownish green | [illegible] | | Replaced by a little loose connective tissue | Same | Same | Its contents colourless | |
| [illegible] | [illegible] | [illegible] | | [illegible] | [illegible] thickened | | | Cirrhosed | Quite absent | | As above | As above | As above | As above | |

OBLITERATION OF THE BILE-DUCTS, SHOWING THE GREAT

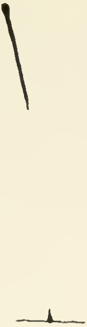
ONS.



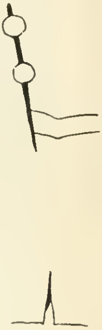
ennig's Case (21).



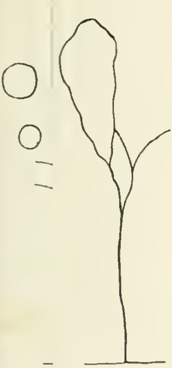
Kōstlin's Case (30).



Heschl's Case (19).



Roth's Case (13



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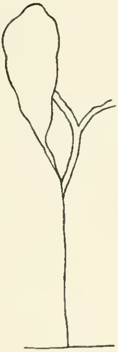
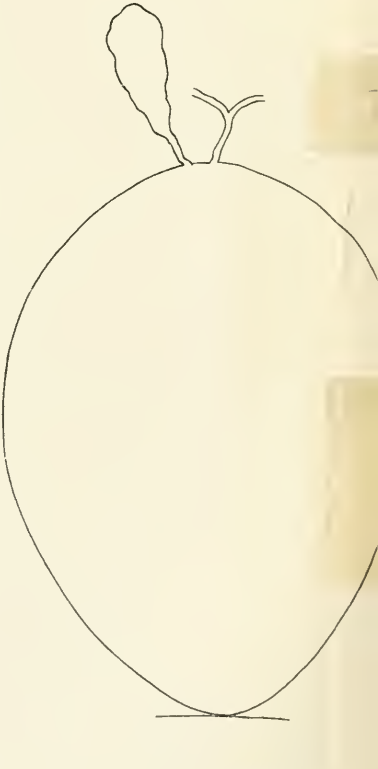
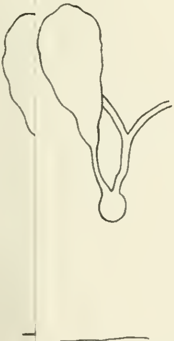
Binz's Case (15).



Blake White's Case (37).

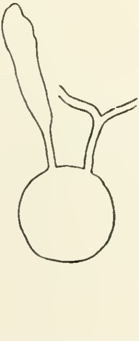


Oxley's Case (23).



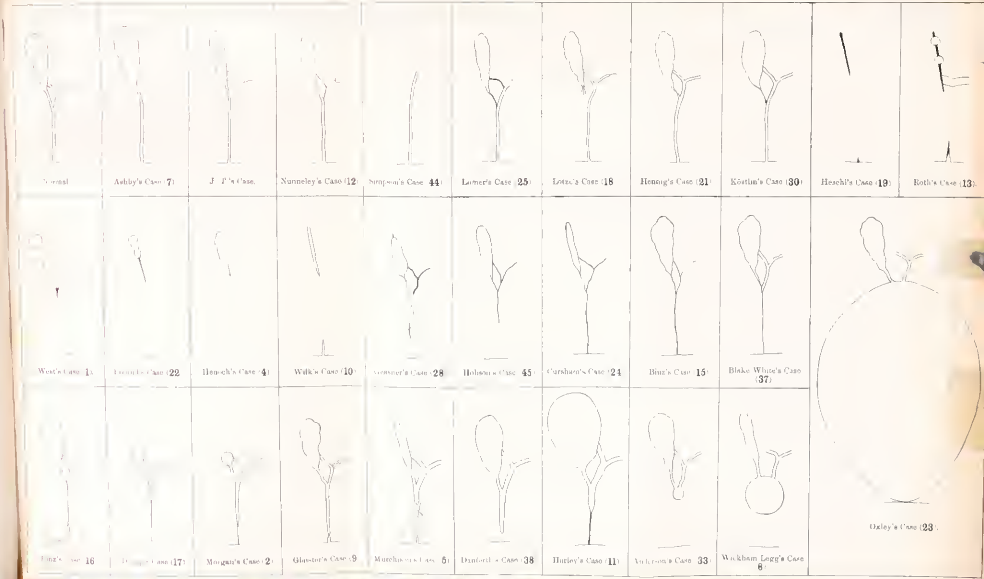
Bin

erson's Case (33).



Wickham Legg's Case

TABLE III.—DIAGRAMMATIC REPRESENTATION OF THE LOCAL CONDITIONS DESCRIBED IN 29 OF THE REPORTED CASES OF OBLITERATION OF THE BILE-DUCTS, SHOWING THE GREAT VARIETY WHICH EXISTS IN THE POSITION AND EXTENT OF THE LESIONS.



Normal
Ashby's Case (7)
J. F.'s Case.
Nunneley's Case (12)
Simpson's Case (44)
Lomer's Case (25)
Lotze's Case (18)
Hennig's Case (21)
Köstlin's Case (30)
Heschl's Case (19)
Roth's Case (13).
West's Case (1).
Frerichs's Case (22)
Henoch's Case (4)
Wilk's Case (10)
Gessner's Case (28)
Hobson's Case (45)
Cursham's Case (24)
Binz's Case (15)
Blake White's Case (37)
Binz's Case 16
[illegible] Case (17)
Morgan's Case (2)
Glaister's Case (9)
Murchison's Case (5)
Danforth's Case (38)
Harley's Case (11)
Anderson's Case (33)
Wickham Legg's Case (6)
Oxley's Case (23).

# TABLE IV.

| Reported by | [illegible] | [illegible] | [illegible] Children | Age at Death | [illegible] | State at Birth | Signs of Syphilis | When Jaundice began after Birth | Meconium | Motions | Progress of Jaundice | State of Nutrition. | Position of Hæmorrhages, if Present. | Ascites | Spleen. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | | First [illegible] died, under a month old, from jaundice; the fifth, aged 6 years, is in jaundice also | 6 days | | | | 3rd day | | | Varied from day to day | | | | |
| [illegible] | [illegible] | | | 17 days | F | Remarkably stout and healthy. | | 3rd day | | White, like putty | Did not change | Emaciated | Umbilical (fatal) | | |
| [illegible] | [illegible] | | | 1[illegible] days | M | Delicate | | | | Reddish brown | | | | | |
| [illegible] | [illegible] Journal of [illegible] 1861 | | Three other children, one of whom died with exactly the same symptoms | 11 days | M | Healthy | [illegible] | [illegible] day | Present. | | Became deeper | | Umbilical (fatal) | | |
| [illegible] | [illegible] | | Three girls alive and healthy; two boys died with jaundice and umbilical hæmorrhage | 12 days | M | Remarkably strong and healthy | | [illegible] day | | White | | | Umbilical (fatal) | | |
| [illegible] | [illegible] | [illegible] | Six other children, one of whom died [illegible] with similar symptoms | [illegible] days | M | Well nourished, weighed 7½ lbs. | | First little or none, soon began and extreme on 4th day | Ordinary amount | Yellow, more or less mixed with green | Gradually increased till the 4th day | Emaciated | Umbilical, subcutaneous, and into right pleura. | | |
| [illegible] | [illegible] | [illegible] (syphilis) | One healthy alive, one of whom suffered from jaundice for some days after birth | 33 days | M | Healthy | None | Present at birth | Natural. | Well coloured | Became deeper after | Failed rapidly | Umbilical, subcutaneous, and into bowel, and into heart muscle | None | Large |

## TABLE IV.—*continued*

| [illegible] | [illegible] | Perihepatitis | Consistence | Gall Bladder | [illegible] | Cystic Duct | Hepatic Duct | Common Duct | Duodenum | Blood-vessels |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] what | [illegible] | [illegible] | [illegible] | [illegible] yellow colour | Permeable | Same | Same | | |
| [illegible] | [illegible] | | [illegible] | [illegible] and contracted | [illegible] | Contracted, firm, white, [illegible] | Same | Same | No bile in intestine | |
| | [illegible] | | | [illegible] large, very full | [illegible] | | | Permeable | Contents reddish brown | |
| | | | | | A quantity [illegible] | | | Blocked by an indurated cord like plug of inspissated bile | | |
| [illegible] | [illegible] | | | | | Permeable | Same | Same | | Umbilical vessels permeable |
| [illegible] | [illegible] | [illegible] | [illegible] | | | It is implied that they were permeable | Same | Same | | |
| [illegible] | [illegible] | | | | Dark sticky bile | Perfectly permeable | Same | Same | | Normal |

We might still further analyze this excellent work, but would rather advise every surgeon who operates on the abdomen to possess himself of it. There are occasional misprints that should be corrected, such as p. 23, line 9 from foot, and p. 59, line 10 from foot, also an occasional use of the word laparotomy for cœliotomy, as on p. 90. These and similar errors can easily be corrected in the next edition, and probably will escape the notice of those who have not been trained to correct the press.

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*On Hare-lip and Cleft Palate.* By William Rose, M.B., B.S. London, F.R.C.S., Professor of Surgery in King's College, London, and Surgeon to King's College Hospital. London: H. K. Lewis: 1891.

From its preface to its conclusion this most excellent monograph bears the impress of the teaching of the great master of surgery, who did so much to improve the treatment of hare-lip and cleft palate.

Mr Rose was a favourite pupil, friend, and assistant of Sir William Fergusson, whose chair he now so worthily fills, and in an elegant and grateful sentence he dedicates this work to his memory. Every one who knows Mr Rose's work, his natural abilities, and his admirable training, will expect much from this monograph on a subject he has made peculiarly his own, and they will not be disappointed. The first four chapters are on anatomy and physiology and development; the latter is written by Mr Albert Carless. The surgeon after reading these will come with more interest to the practical chapters on the operations. As to hare-lip, Mr Rose prefers soon after the sixth week as the best time, and most wisely advises that no hospital case should ever be done as an outpatient. The description of the operation is admirable. Mr Rose insists on the precaution (too often omitted) of a very free loosening of the attachment to the maxillæ and alveoli, so long as the knife is kept close to the bone no hæmorrhage need be feared. The writer has found a long and strong thumb nail an excellent instrument to separate the lips from the bone once the mucous membrane of the gum is cut through. Mr Rose then insists on free removal of tissue at the cut edges; he rejects all instrumental compressors during the operation, the thumb and forefinger of an intelligent assistant being far preferable. The stitching is done by silver sutures, which may soon be relaxed, and by fine catgut sutures uniting both skin edge and prolabium, the most important stitch being the one which should always be introduced first, which is to bring in accurate apposition the mucous membrane on the inside of the lip. If this is omitted, the child's tongue in sucking may act as a wedge to separate the flaps from the inside. Mr Rose does not forget to caution the nurse to depress the lower lip for some hours at intervals after the operation till the child is accustomed to its diminished oral aperture. One of Mr Rose's nurses has devised an ingenious application of collodion between the lower lip and the chin to effect this depression. In double hare-lip Mr Rose recommends the removal of the projecting intermaxillary bone at the earliest opportunity. The instruments and methods in operating for cleft palate are admirably described with the authority of one who has successfully done a great many cases. The direction as to anæsthesia, duties of the assistant, and as to details of the technique, leave nothing to be desired. The book is bigger than it need be on account of the care Mr Rose has shown to do justice to other operators and to describe various stages and modifications in the operation. Those who know Mr Rose, his surgical zeal, his thorough anatomical knowledge, and his manual dexterity, will gladly welcome more such practical and instructive monographs from his pen. The remarkable series of operations on the Gasserian ganglion in obstinate trigeminal neuralgia shows that he is both a daring, original, and successful surgeon.

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*An Introduction to Human Physiology.* By AUGUSTUS D. WALLER, M.D., Lecturer on Physiology at St Mary's Hospital Medical School, London. London: Longmans, Green, & Co.: 1891.

DR WALLER is to be congratulated on having made a successful attempt to explain in simple language the main points of physiology with which the medical student requires to be familiar. His *Introduction to Human Physiology* is written plainly and clearly, and cannot fail to be useful.

For any individual to write a text-book so perfect as to be exempt from criticism is almost an impossibility. Physiology has become a science of such magnitude that no one can be master of its every part, and hence we cannot hope for uniform excellence throughout a text-book.

If we consider the present volume in a critical spirit, we must find fault, in the first place, with the method of arrangement—a matter of prime importance in a student's text-book. In this we do not think that Dr Waller has been quite so careful as he might have been. The various parts of the subject are not clearly differentiated from one another, and hence the reader is apt to be confused. This want of system is very manifest even in the second chapter, on the blood, but is specially marked in the section dealing with digestion—where the secretion of milk is considered alongside of the secretion of saliva.

We naturally, in any work from the pen of Dr Waller, turn to that part which deals with the physiology of the heart. We must confess to a feeling of disappointment in the perusal of this portion of the book. The passages explaining the bearings of the physiology of the organs of circulation upon practical medicine are specially unsatisfactory, while few will agree with the author in his statement that, "By means of the cardiograph we may accurately determine the time occupied by the systole of the auricles and ventricles and by their diastole." In the consideration of the pulse, the important distinction between "mean blood-pressure" and "tension of the pulse wave" is not sufficiently emphasized, and we are disappointed to see the explanation given to the various parts of the sphygmographic trace. This in the light of recent experiments surely requires modification.

As usual in all text-books, we find mistakes from older writers copied without question or correction.

But these remarks are merely an amplification of what we have already said, that no one man can write a perfect text-book. Dr Waller is to be congratulated on having produced one so good in most respects. Not the least useful part of the work is the admirable series of diagrams and tables with which the text is elucidated.

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*Inaugural Address to the Physiology Class in Anderson's College.* Session 1891–2. By D. Campbell Black, M.D., L.R.C.S. Ed., etc. Glasgow: Hugh Hopkins: 1891.

Everything from the pen of Dr Campbell Black is sure to be racy and readable, even an inaugural address he can make fruit-bearing. Not that it brings out any new physiological theory or series of experiments. It is very much a discussion on things in general. He begins by a most slashing attack on monopoly in the teaching of medicine, and claims his right and that of every other graduate in medicine to teach from the cathedra doctoralis. After a passing cut at the new method of torturing and mulcting students by the so-called practical classes, he comes down on the very weak spot in a university degree examination—that the professors do it, the interests of the student, the profession, and the public being guarded only by the presence of assessors who are "the nominees of the university, gagged and fettered by the university." He then gives his views on the abuse of hospitals, which is coming to be so serious a burden both on the public and on the profession. On the public who have to support palatial institutions, which teach the working classes to expect everything for nothing; and to the overworked and underpaid profession, who find their working class patients tempted into out-patient rooms and dispensaries of all kinds, where young specialists give advice and medicine for nothing to people who spend more on food and luxuries than their doctor can afford. He ends by a practical advice to his students as to the three classes of authors they should avoid.

1. The inventors of new surgical instruments or medical devices.
2. Those who prescribe and recommend the drugs which they read about in advertising columns, or hear about from the drug store traveller.
3. Discoverers such as the distinguished authors of "Kochspiel" or the "Cameronian Rant."

One word to the author, who is bene natus, bene vestitus, and more than mediocriter doctus, why does he on page 6 spoil an excellent hexameter line by quoting it out of his own head, and not verifying his references?

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*On Certain Arrangements made in the City of Glasgow,* 1866, *with a View to the Prevention of Epidemic Cholera; with an Appendix.* By W. T. GAIRDNER, M.D., LL.D., Professor of Medicine in the University of Glasgow. Reprinted from the Transactions of the Association of American Physicians, Sept. 1891.

WHILE every one knows Prof. Gairdner as the great teacher of medicine and consulting physician in Scotland, his older friends remember also that for ten years he held the most difficult post of medical chief of the sanitary administration of Glasgow, which at that time was one of the filthiest as it was also (with one exception) the most overcrowded cities in the empire. Fortunate in one thing, the possession of an abundant supply of beautifully pure water, it had nearly every other disadvantage, and was often ravaged by typhus and other fevers. The cholera was approaching the country in 1865, and in this little pamphlet we have the substance of a spoken address delivered to the Association of American Physicians, telling how Prof. Gairdner laid his plans to prepare for and if possible defeat the epidemic. Previous epidemics had been very severe in Glasgow. The Lord Provost and magistrates were liberal and enlightened, and gave Dr Gairdner a free hand. We learn in this interesting *brochure* how the hospitals were provided, how a medical staff was selected and arranged, dispensaries for drugs and disinfectants armed, the cleansing department reinforced and encouraged. Still one link was wanting, how were cases of diarrhœa or cholera to be reported and brought under the notice of this vast organization? This, by a happy thought, was managed through the various churches of different religious denominations; a staff of between 3000 and 4000 were selected and set to work in various sections — a true layman's league for the best union. Perfect in its arrangement and in its success, this little work describes, in most pleasant terms, a true sanitary victory.

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*A Treatise on Practical Anatomy for Students of Anatomy and Surgery.* By H. C. BOENNING, M.D., Lecturer on Anatomy and Surgery in the Philadelphia School of Anatomy, etc. Philadelphia and London: T. A. Davis: 1891.

WE are told in the author's preface to this work, that "It will be found fully abreast of the latest teachings in Anatomy, and in some directions decidedly aggressive;" and, "finally, the book is not a compilation, it is the result of years of practical work and a large experience in teaching."

A careful examination of this work has led us to conclusions regarding its merits which differ very decidedly from those of its author. In our opinion it contains numerous erroneous statements and important omissions, and instead of being "fully abreast of the latest teachings on Anatomy," it ignores almost all the important contributions to human anatomy that have appeared within the last twenty years.

The title of the work is one that is apt to mislead students, as its general plan is that of a "systematic" rather than a "practical" treatise. The bones are described first. Under this section we notice, as a rule, only vague references to the mode of ossification of the bones, and those given are nearly useless for practical purposes. In the case of the upper jaw the author devotes nearly half a page to its ossification in relation to cleft palate, but shows entire ignorance of the writings of Albrecht, Kölliker, Turner, and others on this subject. In the description of the femur we find no reference to the observations of Prof. Humphrey, which show that the angle of the neck with the shaft of the femur does not, as a rule, decrease with old age. The number of centres of this bone is given, but no statement as to when they appear or when the epiphyses unite with the shaft.

The costal cartilages are said to be arranged in ten pairs, "of which the upper five are true costal cartilages and the lower five false." The author appears to believe that only five pairs of costal cartilages join the sternum, and that the eleventh and twelfth ribs have no cartilages.

In the description of the articulations there is the following account of the capsular ligament of the hip-joint:—"CAPSULAR. Attached to the neck, or oftener to the trochanters and intertrochanteric line, inserted external to the cotyloid ligament. ILIO-FEMORAL OR Y-SHAPED.—*Origin,* anterior inferior spine of ilium. *Insertion,* anterior intertrochanteric line." The ilio-femoral ligament is evidently considered to be something quite distinct from the capsule, instead of merely a thickened part of it, while no mention is made of any other thickenings of the capsule. Every first year's student of anatomy is expected to know that the capsular ligament is not attached to both intertrochanteric lines, but only the anterior one, as it only reaches about half way down the back of the neck of the femur. Nothing is said about the uses of the different parts of the capsule. It is surely not unreasonable to expect, in an American work for students of anatomy and surgery, some allusions to the relations of this capsule to dislocations at the hip and fractures of the neck of the femur, but there are none.

There is no description of the synovial membranes of the hip, knee, ankle, shoulder, or elbow-joints; and the nature and extent of the movements at these joints is also omitted.

There are 198 woodcuts, many of them old and familiar friends. In the preface we learn that "the illustrations have been carefully selected and their sources credited." We have failed to find any acknowledgment of the source of any illustration.

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*Some Remarks upon the Etiology of Typhoid Fever.* By N. S. Davis, Jr., A.M., M.B.

*Complications of Typhoid Fever.* By John H. Chew, M.D.

*On the Antipyretic Treatment of Typhoid Fever.* By William E. Quine, M.D.

*Laparotomy for Intestinal Perforation in Typhoid Fever, with the Report of a Successful Case.* By Weller van Hook, A.B., M.D.

*Purpura, with the Report of a Fatal Case complicating Enteric Fever* By Dr J. L. Cutler.

[Five preceding Articles in the "Chicago Medical Recorder," November 1891.]

*Typhoid Fever.* By William H. Pierce, M.D.

*The Bacillus of Typhoid Fever.* By John A. Jeffries, M.D. [Two preceding Articles in the "Massachusetts Medical Journal."]

*Medical Communications of the Massachusetts Medical Society*, Vol. XV., No. 11, 1891.

The Americans have, unluckily for themselves, greater opportunities of studying typhoid fever than we have here, and, being naturally anxious to lessen the frequency of this plague, are constantly on the look-out for new remedies or plans of treatment with which to do so. Part of the results of this search is to be found in five papers in the *Chicago Medical Recorder* for November last, and in two communications to the *Massachusetts Medical Society*, and published by that Society last year. Two of the papers discuss more particularly the Koch-Eberth Typhoid Bacillus, and emphasize the doubt that is springing up in many quarters, whether it is to this organism alone that the honour of causing the fever belongs. Davis is inclined to think that more than one organism is involved, perhaps including the Bacillus Coli Communis, while Jeffries looks on the Koch-Eberth Bacillus as probably the only cause. Both mention Uffelmann's method of growing this organism in a medium stained with methyl violet, but say nothing further about the process.

In his paper on the "Complications of Typhoid Fever" Dr Chew lays great stress on tympanitis and the degeneration of the muscular fibre of the heart and consequent cardiac failure.

The most interesting papers of the series are those by Drs Quine and Pierce. Dr Pierce is of the old school, and treats all his cases by rest, milk diet, and for medicines, mercurials by preference. He thinks antipyrin and its chemical allies act, not as antipyretics, but as analgesics, and is firmly convinced of the value of pepsine, which he regards as a most valuable antiseptic. Pepsine, whose watery solutions become stinking in a few days! Dr Quine is of another mind, and, after giving many valuable notes of experiments performed to elucidate this point, gives as his opinion that frequent small doses of antipyrin, or better still, sponging, the cold pack or cold baths, are the most trustworthy modes of treatment. He has come to this conclusion from observing that patients treated in this way, whose temperature is never allowed to go above 103° Fahr., though they do not convalesce sooner, yet are not so worn out, and have a greater reserve of strength when the fever has spent its force.

It is a most curious thing that none of these observers recommend an antiseptic treatment, such as the one indicated by J. Burney Yeo in his small monograph on the subject published last year. We think that sooner or later a really efficient means will be found with which to combat this malady, and that it will be out of the class of antifermentative substances.

Weller van Hook, M.D., records a successful case of laparotomy for intestinal perforation in typhoid fever, in which he closed the rent in the gut with three longitudinal rows of interrupted Lembert sutures, drew the omentum over the injured bowel, stitching it to the mesentery. He then washed out the peritoneal cavity with boiled water.

Another point made clear by the perusal of these papers is the evident danger of getting the water-supply of a town from the lake, however large, on which it may be situated, even though the supply be procured at a considerable distance from the town itself.

The papers themselves, and the discussions they evoked, are well worth reading, if only to show the great divergency of opinion which exists in the minds of our American confrères about this disease, even after all their experience of it.

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*The Asclepiad.* No. 32, Vol. VIII. Edited by BENJAMIN WARD RICHARDSON, M.D. London: Longmans, Green, & Co.

A NUMBER full of good reading and original work. It contains the concluding (fourth) part of Dr Richardson's great paper on the Peroxide of Hydrogen, an interesting life of Dr Moore, two excellent physiological papers, and a lot of Opuscula Practica. Indeed, Dr Richardson is so industrious and so many-sided, that he runs this admirable quarterly, as the children would say, "out of his own head."

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*The Provincial Medical Journal,* January 1892. Edited by THOMAS M. DOLAN, M.D. London: Provincial Medical Journal Office.

WE have to congratulate our enterprising and outspoken contemporary on the admirable commencement it has made for the new year. It is an excellent number both in subject-matter, leading articles, and reviews. The "Professional Failure" has one of his racy articles; and there is an excellent portrait, with a short notice, of Dr Murdoch Cameron of Glasgow.

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*The British Guiana Medical Annual and Hospital Reports.* Edited by J. S. Wallbridge, M.R.C.S.; E. D. Rowland, M.B. Ed., Demerara. Georgetown: Baldwin & Co.: 1891.

*The Leeward Islands Medical Journal.* Being the Proceedings of the Leeward Islands Branch of the British Medical Association, 1891. Edited by H. A. Alfred Nicholls, M.D., F.L.S. London: J. & A. Churchill: 1891.

In the first of these two journals are included several interesting papers on Yellow Fever, Dysentery, and one with twenty cases of Cirrhosis. Perhaps the most instructive article is one from the pen of Dr J. E. A. Ferguson on "Pathological Studies in British Guiana," Part I., in which the pathological changes of the body in malarial cachexia, or anæmia with fibrosis, are minutely described.

The second is the first offspring of a newly constituted branch of the British Medical Association, and is mainly composed of observations made on Bilious Remittent Fever, Endemic Fever, Yellow Fever, and Dysentery. Quinine is recommended for use in the remittent and yellow fever, large doses of ipecacuanha should be persevered with in dysentery, and liquor hydrargyri perchloridi in the same disease in children. The volume is well got up and merits perusal, not only for the opinions of those in daily contact with these tropical diseases, but also to obtain a glimpse at the life and trials of our brethren across the seas.

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*Queen Victoria's Jubilee Institute for Nurses (Scottish Branch) Third Annual Report,* 1891.

The gracious wisdom shown by Her Majesty in devoting the Jubilee Gift from the Women of Britain to the nursing of the poor in their own homes is every year being more and more clearly shown in the good reports of the various branches. The Scottish Branch has from the first been most wisely and successfully managed. It possesses a most spirited and enthusiastic Honorary Secretary, and this Report describes the progress of another year.

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*International Medical Bibliography; a Classified List of all Works on Medicine, including important Magazine and Paper Articles published in England and Abroad.* Edited by Gustav Ruprecht. Part I. January, February, and March. London: Luzac & Co.: 1891.

This is an edition in English of a work published in Germany. It seems to fulfil its intention of giving a full bibliography of medical works in German, French, Danish, and English. It covers a wider field than *Neale's Digest,* but is not so usefully arranged for reference. It is less complete than the *Index Medicus.* New books are described, and eighty medical journals referred to, quoting their more important articles.

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*Scheme for Pathological Index.* By JAMES C. HOWDEN, M.D., Glasgow: Macdougall, 81 Buchanan Street: 1891.

IN the note-books of our asylums there is a vast accumulation of pathological facts from which important generalizations might be obtained; but owing to the difficulty of wading through such reports, little use is made of them. This is especially true when the reports have been kept by successive observers.

Dr Howden, the well-known physician superintendent of the Montrose Asylum, overcomes this difficulty by the use of an index, a copy of which, reprinted from the *Glasgow Medical Journal,* is now published.

In 1871 Dr Howden explained the value and use of this index, giving in illustration an analysis of the post-mortem appearances in 235 insane persons. We recommended this paper to the notice of our readers at the time. All those who keep notes in asylums and hospitals should consult Dr Howden's scheme. Its utility is incontestable; it seems complete in every way, and we cannot suggest any improvement.

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*A Pocket Epitome of the British Pharmacopœia.* By RUSSELL COOMBE, M.A., F.R.C.S., Surgeon to West of England Institution for the Deaf and Dumb. London: Baillière, Tindall, and Cox.: 1891.

THE author tells us his object is twofold. 1. To enable students to ascertain at the bedside the constituents and strength of any compound preparations prescribed; and, 2, to give busy practitioners a *portable* list of official drugs and their doses. We very much doubt if either the "student" or the "busy practitioner" will find this epitome supersede any of the many other already existing posological tables.

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*Song of the Squirt.* By BACILLUS. Dedicated, without permission, to the President and Members of the Sheffield Medico-Chirurgical Society. Sheffield: Pawson & Brailsford, Printers.

*How Rachel Weeps in the Nineteenth Century.* By a Disappointed Patient. Sheffield: Pawson & Brailsford, Printers. (Both printed for Private Circulation only.)

THESE excellent little *jeux d'esprit* are from the pen of an old Edinburgh graduate, Dr Keeling. The first records the rise, trial, and collapse of the Koch treatment in a most amusing style. Mr

Bacillus himself reads the paper. The other is a somewhat caustic, possibly true view of Rachel in the nineteenth century told by herself. To aid the assimilation and enjoyment of each of these amusing ditties, the author wisely gives the following directions—"Post cœnam, carmen cum guttâ vini Caledonii est sumendum." But we are inclined to think that the one-drop dose might be increased with safety, unless any of the patients are homœopaths.

# Part Third.

## MEETINGS OF SOCIETIES.

### MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION LXXI.—SPECIAL MEETING.—MEETING III.

*Wednesday*, 6*th January* 1892.—Mr JOSEPH BELL, *President, in the Chair.*

### I. EXHIBITION OF PATIENT.

*Dr Norman Walker* showed the MAN WITH THE ELASTIC SKIN.

### II. ORIGINAL COMMUNICATION.

*Mr Harold J. Stiles* read his paper, illustrated by limelight and microscopic demonstrations, on CANCER OF THE BREAST, its Pathology and Pathological Anatomy, with special reference to Operative Treatment, an abstract of which will appear in an early number of this Journal.

*The President*, in returning the thanks of the Society to Mr Stiles for his most interesting, monumental, and exhaustive address, rendered so valuable and intelligible by the beautiful limelight illustrations, expressed his great satisfaction with it. Its wide range rendered it interesting to the embryologist, the pathologist, and the surgeon, and a wide field of discussion was opened. From his own point of view, as an operating surgeon, he agreed entirely with Mr Stiles' argument, that not only should the whole breast be removed with scrupulous exactitude in every case of cancer, but also much skin over it, the whole pectoral fascia, and as much as possible of the contents of the axilla. He absolutely dissented from an opinion he read lately in a southern authority, that the pectoral fascia should if possible be left intact, as the healing was made easier and septicæmia was less likely to follow. Before sitting down, he mentioned, for the encouragement of surgeons, that within the last week he had seen two cases of ladies, each of whom had had both breasts removed at different times for cancer, and both of them were in perfect health, one eight years after the second operation.

*Professor Chiene* expressed the great interest with which he had listened to Mr Stiles' demonstration. He had for two years observed day by day the investigation as it progressed. As the work was done in the laboratory, the methods devised by Mr Stiles were applied clinically; and the speaker very strongly recommended that the nitric acid method should be used at the operation, and frequently it would be found that the operation had to be extended. If this method was used, much help would be given to the surgeon to be more thorough in the operation, and give greater hope of a permanent cure. Professor Chiene expressed the great gratification with which he had heard this demonstration, founded on work done in the department over which he had the honour to preside.

*Mr A. G. Miller* had heard Mr Stiles' paper with much pleasure, and had learned many things from it which he intended to put in practice. He would much rather think over what he had heard than speak about it. He would like to say, however, that he had already been able to carry out some of Mr Stiles' suggestions, which he had received from him from time to time at the Royal Infirmary. That good results have followed excision of the breast not unfrequently is known to all hospital surgeons. Mr Miller recently removed the right breast from a woman whose left breast had been removed by the President eight years before. The result on the left side was perfect. Mr Miller had also removed some years ago a small nodule that had appeared at a stitch-hole in another patient of the President's. The irritation of the stitch had been the determining cause of the return in this case. The patient was heard of recently as well.

*Surgeon-Major Black* stated that he had seen the practice in Middlesex Hospital some years since of Dr Fell's system of enucleation of cancerous tumours of the breast, which met some measure of operative success. He was not, however, aware what success was obtained in preventing a recurrence of the disease; but it was impressed upon the profession that the powder or paste would only have its full caustic effect upon the cancerous tissues. The first reports on this method of treatment will be found in the Reports of the Middlesex Hospital about 1857–60.

*Mr Cathcart* asked Dr Stiles if he had observed any relation between the position of the primary cancerous nodule and the secondary deposits in the gland itself? If these were due to intramammary lymphatic extension, they ought to be more numerous when the primary deposit was at the source of the mammary lymph stream than when it lay near where the lymphatics left the mamma. Thus, if the axillary lymphatics left at the axillary border of the mamma, a primary nodule there ought not to cause secondary nodules in the mamma. He also asked Dr Stiles if he could explain what seemed to be a clinical fact, *i.e.*, that secondary deposits of cancer seemed often to pass through lymphatic ducts and only cause recurrent growths in the lymphatic glands beyond. Secondary growths often attacked the lymphatic glands only, and yet the cells causing them must have come along the lymphatic ducts from the primary cancer.

*Dr Bruce*, in speaking to the pathological questions raised by Dr Stiles, referred to the new departure he had made in regarding carcinoma of the mamma as purely local and limited in its origin, and not as the result of a general cancerous transformation in the gland. He hoped that Dr Stiles would soon be in a position to demonstrate more fully the grounds on which he based this statement, as well as the evidence that the spreading carcinoma produced atrophy in the neighbouring portion of the acini of the mamma.

*Dr W. Russell* complimented Mr Stiles on the beauty and excellence of his demonstration, and considered the communication would be of much value if it led the surgeons to remove more freely than seemed to be their custom malignant growths, and from what had been already said that evening it appeared that this had already borne fruit. For himself he had long considered that in operating for the removal of malignant growths the consideration ought not to be how little could be removed, but how much it was possible and practicable to remove, including fat and connective tissues. With reference to the channels by which the disease spread, there could be no doubt that the lymphatics played an important part, and some of Mr Stiles' specimens showed well the mode of invasion in fat. As to the necessity for removal of the entire breast, it seemed to him that, theoretically at least, this did not cover the whole ground. The entire gland was not necessarily affected in cancer, and the whole gland might be removed, and yet secondary foci be left in neighbouring tissues. He differed from Mr Stiles on the question of spermatic influence; he (Dr Russell) was disposed to hold to the spermatic influence; he had specimens which appeared to show unmistakably the participation of the endothelium of bloodvessels in the malignant process. As to the so-called pre-cancerous stage, he understood thereby a deviation from normal, which, however, had not advanced sufficiently to lead the change to be recognised as malignancy, but this did not to him imply that the process was any less a malignant one. Mr Stiles himself acknowledged that this pre-cancerous stage could not be distinguished anatomically from the changes resulting from inflammation, and yet there could be no doubt that the processes were different; upon what element or factor this depended had yet to be determined, and he hoped Mr Stiles would continue his interesting and important work.

*Dr Lovell Gulland* expressed unqualified admiration for Dr Stiles' paper. He was specially interested in the fatty lymphatic glands of the axilla, and had carefully gone over Dr Stiles' specimens on previous occasions, with a special view to the question of their nature, and he was able to agree with Dr Stiles' view of their character and origin. He could not accept Dr Russell's opinion that endothelial cells might actually become carcinomatous as the cancer spread, and thought that any appearance suggesting this should be examined very carefully.

*Dr Barrett* said he had listened with great pleasure to Mr Stiles' admirable paper; he wished to call attention, nevertheless, to the arrangement of epithelial cells in cystic tumours—namely, a tendency on the part of the epithelial cells to arrange themselves into spaces which more or less closely resemble acini or ducts of embryonic or nearly normal shape, and that this arrangement may show itself in lymphatic ducts. Also called attention to the very similar appearances met with in the cells of proliferated lymphatic endothelium, and this may in part account for the great cellular plugging seen in many lymphatic trunks both near to and at a considerable distance from the tumour.

*Mr Stiles* thanked the Society for the indulgent way in which his demonstration had been received, and for the generous remarks of the various speakers. He was glad to hear that a surgeon of the President's experience agreed with the principles of treatment which had been deduced from a study of the pathological anatomy of the disease. The plan, long ago advocated and adopted by the President, by which the skin over a tumour occupying the periphery of the breast should be removed, was a most excellent one, and there was abundant pathological evidence to show that this method of dealing with the skin should always be practised in such cases. Mr Stiles considered that the "recurrent" nodule at the site of a suture in Mr Miller's case was a coincidence, and that the stitch was in no way the determining cause. In reply to Surgeon-Major Black, he said that caustics should not be used as long as a knife was at hand. In answer to Mr Cathcart's question, he pointed out that there was no constant relationship between the position of the main tumour and the situation of the locally disseminated nodules. He agreed with Dr Russell that in some cases it might be necessary to remove more than the breast, while in others a partial excision might suffice. Since, however, the surgeon has no means of ascertaining which cases might successfully be treated by partial excision, the rule should be to remove the whole breast in all cases. He could not confirm Dr Russell's observation that endothelium underwent a cancerous transformation. Before sitting down, Mr Stiles begged to be allowed to thank the Surgical Staff both of the Edinburgh Royal Infirmary and of Chalmers' Hospital for their kindness in placing such a wealth of material at his disposal. He felt that the exceptional opportunities thus afforded had increased his responsibilities to-night. He had endeavoured to meet them by bringing his results before the Society in a way which might be of some value to the practical surgeon. He felt he would have failed in this endeavour were it not that he had been fortunate enough to obtain the co-operation of Mr Andrew Pringle, whose skill in photomicrography is now so well known and valued by all scientific microscopists. All the lantern slides illustrating the microscopic appearances have been made from Mr Pringle's photomicrographs of Mr Stiles' preparations, and to that gentleman is due a large share of the credit for whatever interest the Society may have taken in the demonstration. Lastly, he wished to be allowed to express his thanks and gratitude to Professor Chiene, not only for the interest he showed in the work during its progress, but also for the generous way in which he furnished the Surgical Laboratory of the University, where the investigation was carried out, with the necessary apparatus.

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## OBSTETRICAL SOCIETY OF EDINBURGH.

### SESSION LIII.—MEETING II.

*Wednesday*, 9*th December* 1891.—Prof. A. R. Simpson, *President*, *in the Chair*.

I. *Dr J. W. Ballantyne* showed a DERMOID TUMOUR OR TERATOMA which had been expelled *per vaginam* during labour. The specimen had been given him by a medical friend, and the only details which could be obtained were that the woman was a primipara who had not complained in any way previous to labour, that the tumour was expelled in front of the child's head and after the rupture of the membranes; that the child, a full-time infant, showed no abnormality; and that the placenta and membranes seemed normal and intact. A detailed examination of the specimen, which was a dermoid in a bony case, with a membranous and vascular capsule and pedicle, would be presented at a future meeting of the Society.

II. *Dr J. W. Martin* showed a HYDATID MOLE. He said—The specimen I show you to-night is one of hydatid mole, which I was fortunate enough to secure at a recent case. The patient, Mrs C., 22, multipara, occupation a seller of fish, was taken ill on Thursday, the 5th November. She was sitting before the fire, when a large quantity of blood and other matter suddenly came away. It would seem that the ovum and membranes of a three months' fœtus accompanied the discharge. She had severe pain after, and the pain continued all Friday, when I was sent for. At night, at twelve o'clock, she passed a large mass of hydatid mole, together with a portion of the decidua. I washed out the uterus with Hydrarg.-perchlor. 1–3000 with warm water, and more of the mole came away. I introduced glycerine plugs, which were expelled with more fragments and blood-clots later. She still complained of severe pain. The temperature was 99°·2; the pulse rapid, 147 per minute. I feared some septic metritis. Ergot was prescribed, and other uterine styptics, and the patient was to take brandy and eggs. She was fairly comfortable on night of the 7th. She was to have morphia suppositories.

*Previous History of Confinements, etc.*—She had two such—one boy, who lived a night; one girl, lived six months; one miscarriage about the seventh month. The present illness, which she says is about the third month, which is hydatid mole and abortion. The previous miscarriage was brought on by a bad smell which she felt. She went home and became ill.

Patient stammers. She looks slightly cachectic. On the morning of the 9th she complains of pain in the abdomen; she has an earthy look. Her respirations are increased. There is a putrid discharge from the uterus. Temperature, 102°·6; pulse rapid. Fragments of clots and cysts still come away. She is washed out with Hydrarg.-perchlor. solution (1–3000). Glycerine and borax plugs with wood wadding introduced, and suppositories prescribed. Antipyrin, grs. xv., ordered.

At 4 P.M. the temperature still same. She is free of pain. The pulse is rapid and soft—141. There has been profuse sweatings during the day. Patient is inclined to sleep; complains of thirst. Poultices were applied to the abdomen for the pain; calomel and ergotin prescribed. The abdomen is somewhat hard, the uterus is tender to the touch. There is some discharge. At night the uterus washed out with Tr. iodi and warm water. Morphia suppository.

*The* 10*th.*—Temperature, 101°; pulse, 141. Patient has no complaints. Last night at two the bowels acted considerably, and the smell made her sick, and she vomited; slept after. Still some sanious discharge from uterus; washed out with Hydrarg.-perchlor. and warm water. Urine still bad; ordered Spts. ætheris nitrosi, ʒj. dose. Patient can turn herself freely. Evening temperature still over 102°; skin clammy. Patient much exhausted after washing out. Is free from pain.

*Wednesday.*—Temperature, 100°·4; pulse, 100. Patient slept well. Vaginal douche with Hydrarg.-perchlor. Enema for bowels. Cit. of iron and quinine three times a day. Taking some light nourishment

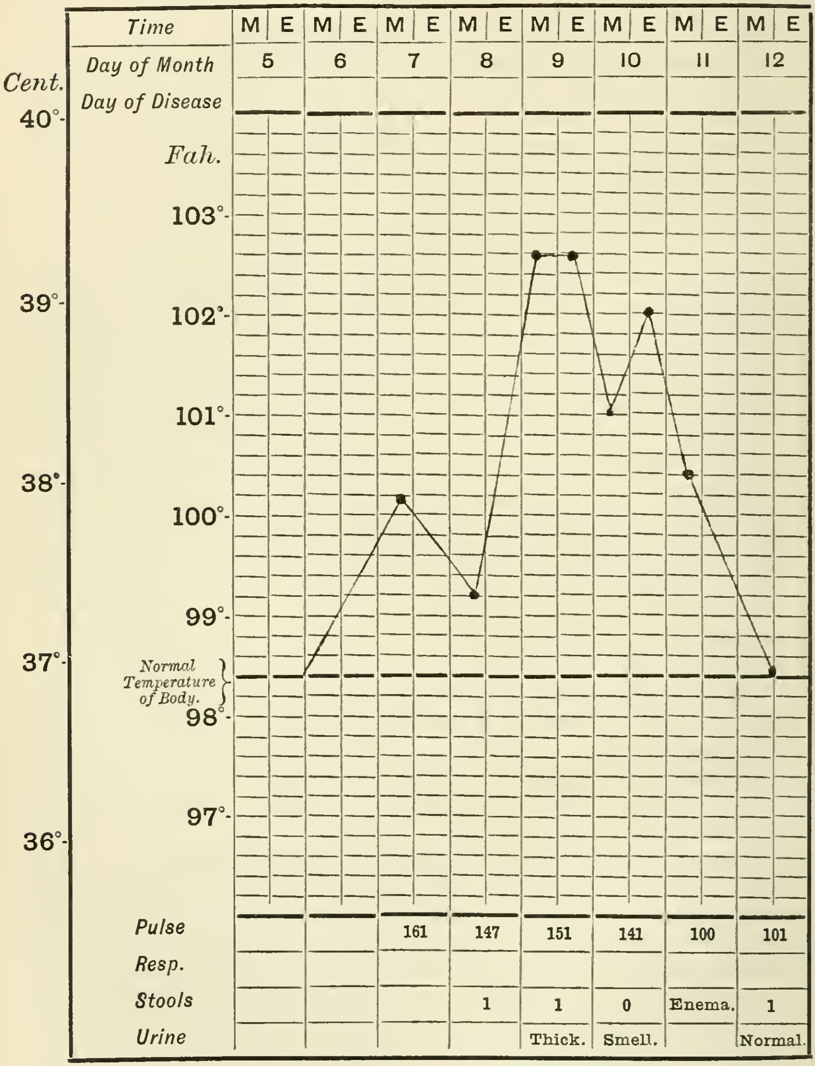
*Thursday.*—Temperature normal; pulse about 100. Complains of some pain in the back; otherwise better. To have beef-tea. Convalescing.

The pathology of the condition is a cystic degeneration of the ovum, the chorion taking on a hydatiform change, and becoming a fleshy mass composed of vesicles like grapes. The villi of the chorion are the seat of the disease, and the translucent vesicles contain fluid like liq. amnii. They vary in size, but are smaller than an acorn. They grow from the pedicle of the chorion. The decidua is diseased at the same time.

It would seem the mole is a rare disease. It is found chiefly in multiparæ, and the rapid number of pregnancies would seem a predisposing cause. Age also has some influence, though this patient is young. Syphilis is a common cause, as I should ascribe that cause to the disease in this case.

## SEPTIC METRITIS AND HYDATID MOLE.

*Records of Temperature, Pulse, Respiration, Stools, and Urine from 5th day of November 1891, in the case of Mrs C., aged 22; occupation, Fishseller; result, Cure.*



The case is generally recognised by the discharge which comes away containing vesicles; and the pain, etc., set up by the contracting uterus leads you to suspect a tumour. Early evacuation of the uterus, and, if necessary, using a curette, and swabbing out with Tr. iodi in hot water (ʒj. to φ), together with the administration of ergot and uterine styptics, and the patient kept quiet, are the remedies for recovery.

### LITERATURE.

Spiegelberg.—*Lehrbuch für Geburts.*, Lahr, 1878.
Charpentier.—C.'s *Midwifery.*
Storch.—Virchow's *Archiv*, vol. lxxii.
Runge.—*Centralblatt f. Gyn.*, 1880, p. 319.
Paech.—*Gaz. Obstet.*, No. 12, 1879; and *Centralblatt f. Gyn.*, p. 431.
Weber.—*Petersb. Med. Woch.*, 1877, Nos. 4–6.
Gscheidlen.—*Archiv f. Gyn.*, vi., p. 292.

*Dr J. W. Martin* also showed the PLACENTA from a case of premature labour. The expulsion of the dead fœtus took place in the night, and it was at the eighth month. The child appeared to have been dead a week. The skin was peeling off, and post-mortem changes were commencing. The placenta was removed under chloroform, owing to the rigidity of the passages. It was somewhat smaller than normal. Judging from the appearance of the fœtus, particularly the cranial bones being quite loose or membranous, and that it had been dead some time in the uterus without apparent violent cause, it is the placenta of congenital syphilis. The effusions of blood, or rather extravasations, are a point of interest, and this must be due to syphilitic disease.

III. *Dr J. W. Ballantyne* read his paper on THE INVESTIGATION OF FŒTAL DISEASES, which will appear in a future number of this Journal.

*The President* said that whilst the prevailing epidemic and the stormy night had combined to thin the attendance on this occasion, the Fellows present must feel that they had been well rewarded for coming, in listening to the interesting communication which Dr Ballantyne had just read. The line of research on which Dr Ballantyne had entered was not only extremely interesting, it promised also to be of great value. He had done well at the outset to expose our ignorance in regard to many of the questions that have to be answered regarding intra-uterine and infantile disease. The worst thing we could do was to cover up our ignorance from ourselves by vague terminology. He (the President) was impressed with what Dr Ballantyne had said as to the relation of intra-uterine disease and malformation to the health conditions of the neonate. Besides some of the kind of cases cited by Dr Ballantyne, we could sometimes see that the child might pass through its intra-uterine existence quite comfortably with grave malformations which led to its death immediately on its birth, whilst some of the slighter malformations might be overlooked until they had led to deep disturbance of the system. A child might be born at full term apparently healthy and well formed, which wetted its cloths from time to time, so that the nurse might report all well, unless accidentally it were found that the urine could only escape in drops. In such a case there might be a constriction of the urethra leading to distension of the ureters, to hydronephrosis, and to such interference with the renal secretion that the child dies of effusions into the pleura and other serous cavities. The result of Dr Ballantyne's investigations could not fail to be of service to the profession, and especially to those of us who were engaged in obstetrical and pædiatrical practice, and it would be well that the Fellows should aid him by sending him fresh preparations for early examination.

*Dr John Thomson* had been much interested by Dr Ballantyne's paper, and especially by what he and Prof. Simpson had said about the potential morbidity of infants who from an early period of intra-uterine life had been malformed, but who did not suffer from their malformation until after they were born. He thought that one reason (and a very natural one) why fœtal diseases were not so interesting to many people as the ailments of children and adults was that in them one lacked the symptomatology which was such a fascinating study in other branches of medical work. Probably the want of improvement in the high infant mortality of cities was mostly due to the unhealthy condition to which the mothers of city babies were reduced by their surroundings.

*Dr Rattray* said he agreed with the previous speakers as to the value and suggestiveness of Dr Ballantyne's paper, which dealt with a most interesting subject, to which far too little attention had hitherto been paid by obstetricians. Many excellent points were discussed in the paper, *inter alia*—1, the non-registering of still-born children; 2, the history of the pregnant woman; and, 3, the exciting causes of monstrosities. Dr Rattray would like, in a few words, to emphasize the importance or effect of maternal impressions, in illustration of which he related the case of a patient whom he had lately attended in her confinement. The labour, a breech case, was tedious. The quantity of liquor amnii was very great. The face of the child exactly resembled that of a pug-dog. Fortunately it was still-born. When the patient was sufficiently recovered she informed me that a pug-dog used to come into her place of business and molest her cat, to her great annoyance. So much for maternal impressions. He was anxious to get possession of the child, but was refused by the parents. A few days ago he was summoned to another case. The woman felt active movements half an hour before the labour was completed. The presentation was normal. At birth, although this infant showed no signs of life, he determined to establish respiration, but to no effect. The mother is a nervous person, and has had at least two deaths among her children, and feared she would lose this one also.

*Dr Martin* said he had listened with considerable interest to Dr Ballantyne's paper. He instanced the case of a child born with a blue cyst on the left eye, the result of a black eye to the mother. It formed a blue cyst, and it still remains. The child has hare-lip and cleft palate, and has also some defect about its left superior maxilla. Fœtal death was largely due to disease of the placenta, particularly syphilis, which produced many primary diseases—*e.g.*, moles, hæmorrhagic effusions, as exhibited. The symptomatology of intra-uterine life should be more studied. The birth takes place without warning to the mother. There was a great need of drugs with which to treat the mother during the intra-uterine trouble.

*Dr Felkin* likewise listened with extreme interest to Dr Ballantyne's paper, which presented a wide field for remarks. It was quite evident that much more should be done than has been done in the past to investigate fœtal conditions. Before referring briefly to the paper itself, Dr Felkin would like to state that Dr Rattray's remarks with regard to the cat and dog incident called to his mind a case which he had accidentally seen in the Veterinary College in Clyde Street a few weeks ago. The fœtus of a cow had been sent there having a face exactly like a bull terrier, and it was believed that the cow, before casting her calf, had been worried by a bull dog. He could not help thinking that much might be done by experimenting on and investigating the fœtal conditions in the lower animals. For instance, in extra-uterine pregnancy some observations which he had been able to make when abroad had proved to his own mind the possibility of an ovum developing in the peritoneal cavity of an animal, not the parent of the ovum. Dr Ballantyne had called attention to parental responsibility, and he (Dr Felkin) thought that more might be done in impressing upon parents their responsibility with regard to both the propagation of children and the necessary treatment in some cases of women during pregnancy. It was especially interesting to notice what Dr Ballantyne said with regard to the occurrence of small-pox in the vaccinated mother, and it was a question to be investigated in such cases whether the father had been vaccinated or not, as it would throw greater light upon the parental element in the cause of fœtal disease. In a paper which Dr Felkin read some time ago before this Society he had, he believed, shown that a father could transmit malaria to a fœtus, the mother remaining free from the disease. He thought much might be done in examining fœtuses born in the tropics, both on account of the frequency of splenic disease, and also of jaundice of a peculiar nature, with which the child was either born or from which it suffered two or three days after birth. There was no doubt, too, that it might be possible for much to be done in diagnosing the fœtal condition during birth, both by paying attention to its pulse, its movements, and such symptoms as are often presented in fœtal malaria. In investigating this subject, Dr Ballantyne would probably find that some information, or at any rate some light, might be thrown on it by investigating ancient writers. It was remarkable to notice how much these old authorities either knew or predicted with regard to disease. He wished to call special attention to a subject which is germane to Dr Ballantyne's paper, because, so far as he knew, no attention had been paid to the matter, and it was one of no little practical importance. Without going into the subject of the possible or probable action of a variety of drugs upon the fœtus in utero, he wished to refer to the action of one drug, namely, quinine. Authorities disagree as to the effect which quinine has, or may have, when administered to pregnant women,—some thinking that it tends to induce a miscarriage, others that it has little or no such tendency. In many text-books one finds it stated that quinine should not be given to a pregnant woman when suffering from malaria. He happened to have had considerable experience in this matter, and he had never found it, even when given in large doses, act as an oxytocic, and he therefore thought that it might be given with perfect safety in cases of malaria in pregnant women, and even its hypodermic administration in cases of pernicious malarial fever did not, he believed, exert any influence on the duration of pregnancy. If a miscarriage took place it was due, in his opinion, to the disease and not the remedy. He used, therefore, to teach that when necessary quinine might be given in large doses to pregnant women when suffering from malaria, but during the past two years he had been obliged to change his opinion, and he now taught that, if possible, large doses of quinine should be avoided, and only administered as a *dernier ressort*. The reason for his change of view was that he was inclined to think that just as they knew that large doses of quinine might injuriously affect the nervous system of an adult, so in like manner might the free administration of quinine to a woman act deleteriously upon the nervous system of the child. They would all be aware that in rare cases the administration of large doses of quinine to an adult might produce such an effect upon the system that a permanent ringing or buzzing in the ears might ensue,—a condition difficult to cure in many cases, impossible to cure in some. The administration of hydrobromic acid might prevent this untoward result, but in his experience it failed to cure it after it had once occurred. He believed that Erb of Heidelberg had cured some cases of this nature by applying galvanism to the cranium, but in this even he was rather sceptical. He had met with two cases in which children had been affected from their earliest consciousness with this same symptom. These children had not been dosed with quinine, but both the mothers had been exceedingly ill during pregnancy, and had had very large doses of quinine administered to them. It appeared to him that this point was well worthy of attention, for he was inclined to think that a considerable amount of the nervous debility exhibited by Anglo-

Indian children was to be attributed to the effect of quinine administered to their mothers previous to their birth.

*Dr Ballantyne* felt that he had been stimulated and encouraged to proceed with his researches on fœtal diseases by the kindly criticism which his paper had evoked. He had been much interested by what had fallen from Dr Felkin with regard to the influence of the male element in the etiology of fœtal disease, and had read his suggestive paper on fœtal malaria. The question of maternal impressions had been touched upon, and he hoped before long to lay before the Society one series of cases in which a mental shock to the mother had been alleged to be the cause of fœtal abnormality, and another series in which, although there were grave fœtal anomalies, no maternal cause was assigned or even hinted at.

IV. *Dr R. W. Felkin* read his paper on THE INFLUENCE OF INFLUENZA UPON WOMEN, which appears at page 710 of this Journal.

*The President* thought the Society was much indebted to Dr Felkin for his interesting and important contribution. It seemed to him (the President) that the profession was painfully at sea in regard to the real nature of this so-called epidemical influenza; and though it had been suggested on various hands that we had to do with dengue, the demonstration had not been so clear as to have led to the general adoption of this idea. He (the President) was greatly interested in hearing Dr Felkin's observations on the influence of the disease in producing a tendency to hæmorrhage. The Maternity had kept free of the epidemic, and not being in general practice he had not had opportunity of watching the effect of it on many pregnant or parturient women; but in one case of labour, which had been followed by an almost fatal post-partum hæmorrhage, he had believed that the hæmorrhage was due to influenza, of which the patient had begun to show symptoms two days before labour set in.

*Dr Playfair* agreed with the President that they were greatly indebted to Dr Felkin for bringing this subject before them. The point in the paper which interested him most was the influence of influenza on pregnancy and the menstrual function. He could recall at present three cases of pregnancy complicated by influenza, and in none of them had the influenza the slightest effect so far as he could see. The pregnancy was not interrupted, nor the labours modified in any way—no post-partum hæmorrhage or other complication. Regarding the effect of influenza on menstruation, he saw that day a lady who had an attack of influenza about a fortnight ago. She menstruated a few days after, and again had a discharge of blood about ten days later, which lasted about five days.

*Dr Rattray* said at present he had several cases of influenza under his care both among young and old. In regard to women when menstruating, marked depression or exhaustion was observed. As to the other conditions Dr Felkin had mentioned he could not at present spot any well-marked case of abortion, etc., in connexion with influenza. At the same time he joined other Fellows in thanking Dr Felkin for his interesting communication on the influence of influenza upon women.

*Dr J. W. Ballantyne* had observed during the first epidemic of influenza two years ago, that in one interesting case it seemed as if the disease had led to abortion and the formation of a hæmatoma in the left broad ligament; in that case there was continuous hæmorrhage, sometimes great, at other times only to a small degree, which had lasted for twelve weeks, and could not be controlled by astringent remedies. He had at present a patient under his care who expected to be confined in a week, and she had just passed through a smart attack of influenza; he would watch carefully at the labour for any indication of excessive blood loss. The immunity from influenza of young infants was a matter which had been largely dwelt upon lately, especially by American and Continental authors, and his experience had been that in the first two epidemics sucklings were rarely affected, but this winter he had found many children and even babies suffering from the characteristic symptoms of the prevailing influenza.

## ROYAL MEDICAL SOCIETY.

*Jan.* 8, 1892.—Dr Miles in the Chair. *Mr Hutchison* read a paper on "Paralysis in Pregnancy." After making some comments on the rarity of this condition and the scantiness of the literature on the subject, the writer gave the particulars of three cases he had seen, and then analyzed all the recorded cases he had been able to collect. He showed that the condition is usually sudden in its onset, of transient duration, and, in a large majority of cases, affects the right side of the body. In discussing the possible causes, he was inclined to discard the theory of albuminuria, for reasons which he stated, and to give the preference to the theories of embolism or thrombosis. The paper was an extremely able and interesting one, and gave evidence both of careful investigation and original thought.

Messrs J. Wallace and Murray Leslie differed from the writer, and suggested hæmorrhage as the cause of the paralysis. Drs Miles, Giles, Messrs Keng, D. C. Watson, and J. K. Watson also spoke, the majority of whom supported Mr Hutchison's views.

*Dr Giles* then read a communication on "Some Factors of Success in Abdominal Surgery," in which he attempted to prove that the surgeon was not keeping pace with the gynæcologist in the surgery of this region, and to point out the factors to which the success of the latter is due, and the advantages to be derived from the wider application of principles derived from a study of them.

Dr Chasseaud and Mr J. Wallace spoke of the elaborate precautions taken by Continental surgeons in order to secure asepsis at such operations.

*Mr W. R. Martine* showed a specimen of Double Ureter on the left side, with hydronephrosis of the left kidney, from the body of a child. Mr A. N. S. Carmichael and Dr Giles made a few remarks on the subject.

*Jan.* 15.—Dr Fitzgerald in the Chair. *Dr Chasseaud* showed a child with a small patch of *favus* on the upper eyelid. Drs Crerar, Cockburn, and Giles spoke on the subject.

*Dr Noël Paton* gave a lantern demonstration on the "Valves of the Heart." Having reviewed the opinions held by physiologists at the present day as to the mode of closure of the auriculo-ventricular valves, Dr Paton proceeded to describe a method he had devised for fixing the heart in various stages of contraction by the application of boiling water. Specimens so fixed when examined by the sectional method showed that the flaps of the valves, instead of forming a horizontal septum, were brought into contact face to face in the cavity of the ventricle. He then proceeded to show photographs of these specimens with the lantern, and afterwards some specimens of the histology of the valves. Lastly, he described the support that this view obtained by a consideration of the physics of the circulation, and the conditions under which regurgitation takes place. The demonstration was a most interesting and instructive one, and the photographs showed the points under discussion with remarkable clearness.

Drs Miles and Crerar, Messrs Keng, J. P. Stewart, Sandeman, and Easterbrook spoke on the subject; Dr Paton being heartily thanked for his communication.

# Part Fourth.

## PERISCOPE.

### MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Iodol and Antifebrin in Infantile Cerebro-spinal Meningitis and Acute Gastro-enteritis.—M. A. Strizover of Sorokï publishes (*Meditzinskoïë Obozrenië*) two cases of cerebro-spinal meningitis rapidly cured by the internal administration of iodol with acetanilide. One of the patients was a girl, aged 4, whose little brother and sister had succumbed to basal meningitis a couple of months previously, and in whom there suddenly appeared high fever, intense headache, retraction of the head and abdomen, general restlessness, etc. In spite of calomel and iodide of potassium internally, inunctions of iodoform oil on the head, and application of icebags, the child's condition rapidly grew worse. On the third day 0·03-gramme doses of iodol and antifebrin were ordered to be given four times daily. After a third dose the temperature began to fall steadily, and restlessness subsided. On the fifth day of the treatment the girl was practically well; and when seen a twelvemonth later she was still in the best of health. Another patient, a boy of 13 months, was treated with iodol and antifebrin from the outset, complete recovery ensuing still more rapidly. Last summer the author treated after the same method his cases of severe and obstinate infantile diarrhœa, accompanied by vomiting, cyanosis of the lips, retraction of the belly, unquenchable thirst, general restlessness, etc. All the symptoms invariably yielded to two or three doses of the remedies. [Krotkoff of Sarator was the first to draw attention to this method of treating cerebro-spinal meningitis. His statements were subsequently confirmed by V. I. Sübbotin of Balashov; see *St Louis Medical and Surgical Journal*, January 1891, p. 49.]—*Supplement to British Medical Journal*, 5th December 1891.

AMMONIUM CHLORIDE IN EPIDEMIC INFLUENZA.—In a paper recently read before the Academy of Medicine in Paris, M. Marrotte advocates the use of ammonium chloride in the treatment of epidemic influenza in preference to quinine sulphate, as urged by M. Gellié of Bordeaux. The results obtained from ammonium chloride are spoken of as highly favourable, the advantages claimed for this remedy over quinine being that it is *much cheaper*, *more rapid* in its action, and brings about a *more complete* and definite cure. It is more especially in those forms of the disease which are complicated with pulmonary congestion or inflammation that ammonium chloride is found serviceable. From 48 to 80 grains are given in twenty-four hours in the form of 8-grain powders, which may be conveniently concealed in wafers (*Mark's Bulletin*, September 1891).—*The Therapeutic Gazette*, November 1891.

INFLUENCE OF MENTHOL ON THE GASTRIC FUNCTIONS.—Following Professor J. T. Tchüduovsky's suggestion, Dr Vladinürsky, in a St Petersburg thesis, has carried out a set of experiments on seven healthy subjects (six men, including himself, and one woman), aged from 24 to 32, the drug being administered with food in the dose of 3, 1, and 2 grammes. The author has arrived at the following conclusions:—1. The drug (in any of the doses stated) very markedly diminishes the proportion of free hydrochloric acid in the gastric juice, the decrease attaining its maximum in about one or one and a half hours after the ingestion. 2. In persons presenting a more or less weakened motor power of the stomach, the decrease lasts longer than in those with a normal one. 3. The digestive power of the gastric juice is diminished. 4. The transformation of proteids into peptones is retarded (hence an increased proportion of pro-peptones, *i.e.*, intermediary products of peptonization). 5. The proportion of lactic acid in the gastric juice is augmented, the rise proceeding parallelly with diminution in the proportion of free hydrochloric acid. 6. The motor power of the stomach grows weaker (in about one hour after the ingestion); in initial stages of the digestion, however, it may occasionally undergo some increase. 7. The absorptive power of the organ improves, which seems to be dependent upon a favourable (stimulating) influence of menthol on the circulation. 8. Contrary to the statements of Ossendowski (*vide* the *Journal of Laryngology and Rhinology*, May 1890, p. 202), L. Braddon, M. Reichert, S. Rosenberg, Hugo Koster, and many other observers, menthol does not appear to possess any special "appetite-making" power. 9. In 1 and 2-gramme doses the remedy gives rise to a kind of intoxication, followed, in four or five hours, by sensations of langour and drowsiness. 10. Menthol may prove useful as a substitute for camphor (*Medical Chronicle*, August 1891, and *American Journal of Pharmacy,* October 1891).—*Therapeutic Gazette*, November 1891.

NAPHTHALIN IN WHOOPING-COUGH.—Chavernac (*Lyon Médical*, November 15, 1891) proposes naphthalin as a remedy in whooping-cough. He places about half an ounce of this substance in a capsule over a stove in the patient's room, which thus becomes filled with the vapours of naphthalin. He states that he thus obtained a cure in a great number of cases. On the other hand, he has found that patients suffering from early tuberculosis cannot tolerate the vapour; he suggests that naphthalin vapour may thus be an aid in the diagnosis of early tuberculosis.—*Supplement to British Medical Journal*, 12th December 1891.

INHALATIONS OF HYDROGEN DIOXIDE IN DISEASES OF THE RESPIRATORY ORGANS.—Dr Gabrilovicz has employed inhalations of peroxide of hydrogen in cases of phthisis (*Gazette Médical de Liège*). The patients presented all the symptoms of the disease (infiltration of the apices, bronchial breathing, râles, loss of flesh, night-sweats, occasional hæmoptysis, etc.) A solution of peroxide of hydrogen in water, in the proportion of 1 to 10 parts per hundred, was employed, the weak solution at the beginning. The inhalations were continued for several months. Six patients treated in this manner were greatly improved, the pulmonary symptoms being greatly ameliorated. The cough was relieved, the expectoration diminished, and in some cases the consolidation was reduced. Although the author's observations were limited, the results are certainly encouraging. Dr Gabrilovicz thinks that inhalation of peroxide of hydrogen will prove very serviceable in the various forms of laryngitis, tracheitis, bronchitis, and also in the early stages of laryngeal and pulmonary phthisis. He also advises this treatment in laryngitis stridulus, whooping-cough, and asthma. In tubercular laryngitis it is best to commence with a 5 per cent. solution of the peroxide; in other diseases it is advisable to employ at first a 1 per cent. solution, gradually increasing the strength until the proper dose is reached (*Dietetic Gazette*, October 1891).—*Therapeutic Gazette,* November 1891.

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## OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. Allan Jamieson, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

Trichorrhexis Nodosa.—Examining one day with the speculum a female affected with syphilis, Dr Paul Raymond found the hairs of the genital region presenting the condition known as trichorrhexis nodosa. Making more careful investigations, he is of opinion that of 100 women taken indiscriminately, 40 will be found to have the hairs of this region named so altered. It is thus as common here as it is rare in the hairs of the beard or head. The little nodosities were specially encountered on the hairs of the labia majora, next on those nearest the genito-crural folds. In proportion as the pubis was approached the diseased hairs became fewer, and on the pubis itself none were discovered. He does not know how far these facts apply to men, but in one man, whose wife was attacked, a certain number were found. These were situated on the scrotum and genital folds, but those on the pubis are also entirely free from the disease. He finds that the commencement of the disease is shown by a fissure or crack in the epidermis of the hair, and in this, as in the portions of the hair where further advance had been made, he discovered a diplococcus rather larger than the staphylococcus pyogenes. On the nodosities themselves, or the broken filaments which constitute this, these micro-organisms are less numerous; in the interior of the nodosity these are present in large numbers, but it is particularly on the neighbouring parts that they are met with, as if they could no longer live on the broken surfaces of the hair, or the minute bristles of the brush. Though he succeeded in cultivating the organism, he has not so far been able to reproduce the disease, and does not assert that this diplococcus is absolutely special to trichorrexis nodosa, yet he regards it as associated with the causation of the complaint.—*Annales de Dermatologie et de Syphiligraphie,* July 1891.

Checked Perspiration. — The following remarks on this question by MM. Besnier and Doyon, in the notes on their excellent translation of Kaposi's work on Diseases of the Skin, just published, are worth attention. In addressing medical readers, it is superfluous to combat the popular theory of "checked perspiration," but it is necessary to examine into what the action of cold is on the glomerular system (of the skin) in a condition of tension, and what may result from the forcible inhibition of this function, one so highly nervous and circulatory, when in full exercise, and the reflex inhibitory phenomena (Brown-Séquard), which are the cause of real casualties succeeding the sudden arrest of perspiration. There is then a normal, physiological, necessary perspiration which must be cared for and favoured like all other excretions,—there are accidental perspirations where sudden suppression is always to be avoided; there are habitually excessive perspirations—abnormal ones—which it is permissible to treat not blindly, however, but solely with due recognition of their cause; there are morbid perspirations, some of which need no interference, as such is contra-indicated; and, finally, there are perspirations induced or excited, whose therapeutic value is above all theoretical controversy.

Multiple Dermoid Cysts simulating Xanthoma Tuberosum.—Pollitzer records a case of this kind which presents some features of much interest. The patient was a housemaid, aged 24, who had an ulcerating syphilide of the legs, her syphilis having been acquired three years before. On the chest and back were numerous little tumours varying in size from a little more than a pin's-head to a small hazel-nut, in colour from a lemon-yellow to that of the normal skin. These were distinctly circumscribed, spherical in shape, lifting up the epidermis, under which, for the most part, they can be rolled about. Many tumours were scattered over other parts of the body, as the scalp, clavicular region, epigastrium, and buttocks, and a few on the forearms. Altogether there were about 150. There were no subjective sensations; some had apparently disappeared when pressure had been exerted on them. Sections made of some showed that they were typical dermoid cysts, most of them containing, besides the usual contents, brownish and black pigment, and it is to the presence of this that the yellow hue is due in Pollitzer's opinion. The current theory of their causation at present is that they arise from sequestration from the surface epiblast. Allusion is made to the remarkable instance originally published in the September number of this Journal, 1873, by the writer of this periscope.—*Journal of Cutaneous and Genito-Urinary Diseases*, August 1891.

Hygiene of Syphilitics.—Brocq, quoting from Renault, remarks that practitioners too often imagine that in order to treat a syphilitic it is only necessary to prescribe for him iodide of potassium, and one of the numerous preparations of mercury now in vogue. But a person attacked with a syphilitic chancre ought, in the first place, to keep himself perfectly clean. In the case of men it is important that they carefully cleanse the prepuce, the anus, the inguinal regions, the umbilicus, the axillæ, the mouth, nose, and ears. Exceeding cleanliness is even more necessary for women, who should at least twice a day wash the genital parts, and the utero-cervical canal.

The minute care in the cleanliness of the person explains why, among prostitutes of high degree, syphilitic lesions of the genitals are so rare, while they are so common among the low prostitutes.—*Journal of Cutaneous and Genito-Urinary Diseases*, August 1891.

THE ETIOLOGY OF ITCHING.—Dr Bronson has pursued still further his valuable and philosophic researches into the domain of pruritus by an inquiry into its etiology. He points out that itching, like neuralgia, tinnitus, photopsia or photophobia, is a sensation, and can only be called a disease by metonomy. It is the sensory manifestation of something unseen—of some morbid change unaccompanied by visible alterations. Even evanescent itching, such as may be elicited by titillating the skin under conditions otherwise perfectly normal, is unquestionably dependent on molecular changes in the sensory nerves, which, though transitory, are for the time being abnormal, and the disturbance should logically be regarded as disease. Practically, however, these transitory disturbances in the economy that are in a sense corrective, in that they indicate danger and suggest their own relief, and which disappear without trace of injury directly the relief is obtained, are not considered as disease. When the itching becomes excessive, when the molecular interference or disorder becomes unduly exaggerated or prolonged, the nature of the proximate cause is not changed, but with it are conjoined other and secondary causes, which serve as contributory features. A factor of prime importance in the production of excessive itching, and one nearly always present, is a state of cutaneous hyperæsthesia. Though not necessarily accompanied by pruritus, when present it only requires the addition of some direct exciting cause to produce excessive itching. Such a hyperæsthesia is especially apt to affect those regions of the skin that are not the most highly endowed with the perceptive sense of touch. Thus it is more often manifested over the back than the anterior surfaces of the body. The arms are more subject to it than the hands. If the soles are an apparent exception, this is perhaps due to the fact that an abundant sensory nervous apparatus has not here attained so high a degree of development as it has in the hands, and hence is more liable to disarrangement. It has been demonstrated by the æsthesiometer, that when pruritus is associated with hyperæsthesia of the surface, as in cases of eczema of a severe neurotic type, there is also well-marked hypopselaphesia, *i.e.*, impairment of tactile sense. In some cases of eczema the paramount symptom is the itching, which from the start is in excess of what could easily be accounted for by the inflammatory changes. Often, indeed, it is evident that but for this symptom the catarrhal disease would disappear, or, perhaps, never have occurred at all. Not an inconsiderable proportion of the cases of eczema are preceded by a prodromal stage of pruritus, and often there is reason to believe that when the eczema does occur, it is only as a consequence of the scratching. The chronic and subacute eczemas about the genito-anal region, the majority—those clearly parasitic excepted—are secondary to a more or less prolonged pruritus. In many cases the occurrence of pruritus, as well as the allied condition, urticaria, must be accounted for as the effect of "reflex irritation." In that common form of itching that occurs in undressing at night, or in any form of pruritus,—in fact, the moment one begins to use the nails,—the limits of the pruritic area seem to expand. Occasionally it seems as if points of communication existed between certain parts of the skin remote from each other. It is a common opinion that pruritus ani is very often associated with hæmorrhoids, but Bronson believes this to be an error. Certainly he says in the great majority of cases there is no such connexion. It may be due to long-continued irritation of the intestinal tract from any cause. Thus, also, pruritus vulvæ may be the consequence of uterine or ovarian disease. Though in pruritus senilis the atrophic changes in the skin due to advanced age may occasion some part, he scarcely believes that they can account for all the phenomena. Many other causes are at work, such as imperfect action of the emunctories, circulation of products of imperfect oxidation, defective metabolism, and all the conditions which may be summed up in the word arthritism. In many cases of pruritus, apparently spontaneous muscular action, especially of the arrectores pilorum, may be a source of excitation. The hairy regions are specially subject to pruritus; and in those forms of pruritus that depend on purely local and external irritation the hairs unquestionably play an important part. In no way can this annoying sensation be more readily produced than by tickling the sensitive hairs. In the so-called "flannel eczema," the affection always begins about the hair follicles. It is invariably a papular exanthem, and each papule can be seen to be transfixed by a hair. The course of events is pretty nearly the following:—First, the little projecting fibres of the wool, tangling about and tickling the hairs of the skin, cause itching. Through contraction of the arrectores pilorum muscles the follicles are elevated, producing "goose-flesh." When the itching surface is scratched, the finger-nails infringing against these little elevations cause more irritation at these points, abrasion, and, finally, a papular inflammation. He denies the pathognomonic significance of the prurigo papules in Hebra's prurigo. So far as his recollections bear him out, at Vienna much less attention is paid to any particular papules than to the general roughness and thickening of the skin occurring over the peroneal aspects of the legs and the outer surface of the arms, and to the persistency of the pruritus in these situations. The papules are perhaps allied to, if not identical with, the lesions of urticaria. The hypertrophy of the arrectores so commonly found in pruriginous diseases is not a mere accident.—*New York Medical Record*, Oct. 24, 1891.

# PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Gynæcology, and on Diseases of Infancy and Childhood, School of Medicine, Edinburgh.

A Case of Ovarian Pregnancy.—At the meeting of the German Obstetrical and Gynæcological Society at Berlin in November 1891, Mackenrodt showed the preparation from a case of ovarian pregnancy. Ovarian pregnancy has long been regarded as more than doubtful, but this case and a few others that have recently been recorded would seem to show that its occurrence is possible. The patient, 32 years of age, came for advice suffering from irregular bleedings after a period of seven weeks' amenorrhœa. There was on the right side of the pelvic cavity a soft tumour of the size of a goose's egg. Curetting the uterus revealed the presence of a soft, thick mucosa, which, under the microscope, showed no fully-formed decidual cells, but in some places many distinctly enlarged connective tissue corpuscles. Ten days later, it was made out that the tumour had grown; and as pelvic pain and a rise in temperature had occurred, laparotomy was performed. During the operation the tumour burst, and a considerable hæmorrhage into the peritoneum occurred; no fœtus was found. The preparation showed a Fallopian tube expanded in its outer third, but normal in its inner two-thirds. The fimbriated end opened into a cystic ovarian tumour of the size of a hen's egg, the fimbriæ projecting into its cavity. Clear indications of a placenta were found in the cyst-wall, and, microscopically, chorionic villi were evident. This was the cyst which had burst during the operation. The swelling of the tube contained only blood coagulum, and was regarded by the writer as a simple hæmatoma. He believes that there existed an already formed tubo-ovarian cyst; that in the ovarian part of it pregnancy occurred, that the ovum died and hæmorrhage occurred, and that the blood entered the tube and set up a secondary tubal hæmatoma. The case is a very curious one, and differs, as the author points out, from that published by Beaucamp and Vuillet.—*Centralblatt f. Gynäkologie*, No. 49, 1891.

A Case of Amenorrhœa and Giddiness from Retention of the Membranes.—Dr G. K. Ter-Grigoriantz of Tiflis records a case in which he believes that amenorrhœa and vertigo following an incomplete abortion at the fourth month were due to the retention of part of the membranes. After a course of iron pills, the expulsion of a piece of membrane, and the curetting of the uterus, the symptoms ceased. The case seems a somewhat doubtful one, and the author does not state whether there was maternal anæmia sufficient to account for the symptoms.—*Centralblatt für Gynäkologie*, No. 46, 1891.

A Maternal Impression?—Dr Wolff of Wilhelmsburg records a case in which he was consulted concerning a malformation of the hand of a new-born infant. The last three fingers of the left hand consisted each of only one ill-formed phalanx with a rudimentary nail. The mother said that in the second month of her pregnancy she had been much impressed by the sight of a woman who had lost her fingers from a burn, and had scars on her neck, face, and forearm as well. The parents and grandparents had no similar defect to that in the child, and Dr Wolff asks whether the condition is to be explained by the maternal impression. The evidence in favour of such a view, although suggestive, does not seem to be complete in this case.—*Centralblatt f. Gynäkologie*, No. 48, 1891.

THE MISAPPLICATION OF THE OBSTETRIC FORCEPS.—The first number of yet another new journal of Gynæcology and Obstetrics contains a paper by Dr M. M'Lean on the "Obstetric Forceps." The author narrates three cases in which a faulty application of the forceps led to serious damage to both mother and infant. In two of the cases the instrument was applied at a wrong time; in the first instance forceps were not used till late in the labour, with the result that extensive pelvic peritonitis was set up and the woman rendered a chronic invalid; in the second, the instrumental interference was made at too early a period,—meddlesome midwifery, in fact,—with fatal results to the infant and with grave danger to the mother. In the third place, the blades of the forceps were applied to the head in an improper way, a dangerous grasp obtained, and natural rotation interfered with.—*New York Journal of Gynæcology and Obstetrics*, vol. i., No. 1, November 1891.

TUMOURS OF THE CLITORIS.—Dr Grace Peckham has collected together the recorded cases of non-malignant tumours of the clitoris, and has recorded one new case. The author points out the extreme rarity of such growths, the prevailing absence of information as to their pathology, the fact that they are generally pedunculated, and the singular lack of pain and inconvenience which accompanies their presence. Syphilis and eczema are regarded as the commonest etiological factors in their production. Almost universal success has attended their removal by ligature, cautery, or knife, and the parts soon return to their normal condition.—*American Journal of Obstetrics*, October 1891.

CONGENITAL CYSTIC ELEPHANTIASIS.—A case illustrating this extremely rare fœtal disease is recorded by Dr W. Reynolds Wilson. The child, which was born at the eighth month, showed beneath the right arm an elastic fluctuating tumour, which extended to the crest of the ilium; and in the left lumbar region a similar growth was noted. In other parts were small, elastic, apparently cystic tumours, and there was hyperplasia of the subcutaneous connective tissue. The growths on the trunk were composed of large cysts with thin walls, whilst those on the limbs contained dilated lymph spaces surrounded by thickened walls and hyperplastic connective tissue. The placenta was friable, but to the naked eye appeared normal; under the microscope there was seen to be some increase in the ground substance of the villi. The fœtus showed no ascites and no abnormality of the internal organs. After alluding to the researches of Busey, Neelsen, Török, Klebs, and Schütz, the writer is compelled to admit that the etiology of the disease is most obscure.—*American Journal of Obstetrics*, October 1891.

GROWTH OF FIBROIDS AFTER THE MENOPAUSE.—Dr Johnson points out, as the result of the investigation of four cases of uterine fibroids, that these tumours do not always cease to grow after the menopause, and concludes that the radical operation ought to be had resort to more frequently, and at an earlier time than is usual. His reasons are, that in cases of growth after the menopause, a more disastrous course is pursued, cystic, calcareous, and abscess formations are more common, and the patients are in a less favourable condition for recovery than before the change in life.—*American Journal of Obstetrics*, Dec. 1891.

## PERISCOPE OF SYPHILOLOGY AND GENITO-URINARY DISEASES.

By FRANCIS CADELL, F.R.C.S. Ed.

THE QUESTION OF A MIXED INFECTION FROM SYPHILIS AND TUBERCULOSIS.—The histological characters of tubercle were, as is well known, considered for some time to be pathognomonic of this affection. The Langhans giant cell, with its peripherally arranged nuclei, necrotic centre, and protruding processes, was considered, when taken in connexion with the other characteristics of the so-called Wagner-Schüppel tubercle, to make up a picture found only in true tuberculosis. Later, doubt was thrown on this view by the discovery of typical Langhans cells in other conditions. Baumgarten, who has interested himself especially in this subject, published a series of papers, showing that he had found Langhans cells in gummatous nodules of the liver, in gummatous lesions of the dura, and in the tissue about vessel ligatures. Of six cases of gummatous orchitis, three were found to contain Langhans cells in large numbers. Hence he concludes that Langhans giant cells can no longer be considered typical of tuberculosis. In 1884, however, in a paper published in Virchow's *Archiv*, Bd. 97, Baumgarten declares that he has modified his previous view somewhat, and that he regards those cases of syphilis where Langhans cells and the Wagner-Schüppel tubercle structure are present as mixed forms of syphilis and tuberculosis. For the support of this view he adduces the following reasons:—(1.) It appears improbable, from his own observations and those of others, that any other process besides tuberculosis that is developed spontaneously in the human body possesses the power of producing Langhans giant cells or the structure of the Wagner-Schüppel tubercle. (2.) The subjects who present gummata in which the Langhans cells and the type of the Wagner-Schüppel tubercle are found, almost always shows unmistakable signs of a present or past tubercular infection. (3.) The gummata of syphilitic subjects who can be positively demonstrated to be free from tubercular complication are never found to contain Langhans cells or the tubercle structure. (4.) The initial lesion of syphilis, as it is caused by the direct action of the syphilitic virus, and must be looked upon as the type of the specific affection of the tissues, never contains Langhans cells or a typical tubercular structure, but accords histologically with the pure gummata of skin, periosteum, and internal organs. In 1889, Michelson found that papules excised from two cases of syphilitic lichen showed in the corium a typical Wagner-Schüppel tubercle structure, with Langhans giant cells. Neumann has also described and pictured giant cells in these papules of syphilitic lichen that accord pretty well with the Langhans type. Michelson, therefore, considers that there are grounds for questioning whether the syphilitic lichen be not a complication of syphilis and tuberculosis. His attempts to find tubercle bacilli in the excised papules were, however, totally unsuccessful. Our author describes two cases of syphilis in which the histological appearances, supposed to be typical of tuberculosis, were found. The first case, a male æt. 19, suffered from syphilitic lichen of the trunk, arms, and legs, with a few large papules interspersed. On histological examination, the infiltration was made up of epithelioid and round cells, with very numerous Langhans giant cells. There was no cheesy degeneration or suppurative change. Inoculations on two rabbits failed to produce a tubercular process, nor could the bacillus of tuberculosis be found. In the second case, a male æt. 35, had gummatous ulceration of the scrotum. Pieces of tissue excised showed beneath the ulcerated surface, in the lower layers of the corium, a granulation tissue, and in almost every section one or more typical Langhans giant cells. The inoculation experiments failed to show anything abnormal. It may, then, be positively asserted that, in gummata and in syphilitic lichen, the histological appearances are not to be differentiated from true tubercle.—John T. Bowen, M.D., *Boston Medical and Surgical Journal*, October 29, 1891.

THE MODERN TREATMENT OF SYPHILIS.—Mr Jonathan Hutchinson has an interesting paper on this subject in *The Practitioner*, June 1891. He considers it our duty, in estimating the final value of any plan of treatment or omission of treatment, to ascertain, if we can, in what degree the prospect of tertiary phenomena will be influenced by our measures. His worst cases apparently come from Edinburgh, where during their early stages they had been treated by a systematic abstinence from mercury. If patients subject themselves to the mercurial treatment within six weeks from the date of contagion, there is not the slightest difficulty in absolutely suppressing the secondary stage. Gray powder is recommended as the form of mercury to be used. Confinement to his room, or, still better, to his bed, aids the action of the drug. Mr Hutchinson admits that it is an extremely difficult task to determine whether or not the whole course of syphilis is influenced for good by the artificial suppression of its early stages. Iodide of potassium is especially useful in cases of diseased bones, in lupoid affections of the skin, in gummata of the cellular tissue and muscles, and in affections of the nervous system. This drug, to many, acts as a depressant. This action may be lessened by the combination with it of the iodides of sodium and ammonium, and a small quantity of free ammonia. Referring to life insurance, he says,—"Judging from my own experience, they appear quite as likely to live as long as others. . . . ." This refers to young men in the early stages of syphilis. Syphilis is considered a predisponent, though scarcely an efficient, cause of locomotor ataxy and general paralysis of the insane. It must be confessed that the results of the specific treatment of locomotor ataxy confirm the inference that it is by no means a direct outcome of specific disease. He refers to inherited disease, as tissue maladies, not the result of existing blood-poisoning. Hence probably, in part, the impotence of mercury. There is no microbe left for it to kill.

SYPHILIS OF THE NERVOUS SYSTEM.—In the American Retrospect in the *Journal of Mental Science*, January 1892, an article is quoted from the *Journal of Nervous and Mental Disease*, by Dr E. B. Fisher. The author divides syphilitic disease of the brain into three classes, viz.,—"Those involving the cranial bones, the brain and its meninges, and the cerebral vessels." In the majority of cases of cerebral syphilis the meninges are involved, and the base is said to be more often affected than the convex surface. The pathology of syphilis of the cord is the same as that of the brain, and in both cases there may be endarteritis independent of meningeal affection. No part of the nervous system escapes, and the diagnosis of the disease rests upon the multiplicity of symptoms, which disappear and reappear in the various stages. Headache arousing the patient from sleep at night is common; sometimes there is mania, and the patient is sent to an asylum. Somnolence is not uncommon; and this condition, combined with loss of memory, apathy, and affection of the third or optic nerves, may be considered diagnostic of syphilis. The disease is most often situated in the arteries, and, according to the author, the morbid anatomy closely resembles non-syphilitic general paralysis. Ptosis, diplopia, inequality of the pupils, with no history of a blow, as a rule indicates cerebral syphilis. Syphilitic disease of the vertebræ is rare, but meningitis is frequent, and is usually diffused. The symptoms may be divided into those which affect the meninges, the cord, and the motor and sensory nerve roots.

# Part Fifth.

## MEDICAL NEWS.

Royal College of Physicians, Edinburgh.—The following gentleman passed the final examination for the degree in Medicine at the sittings held in January 1892, and was admitted L.R.C.P. Ed.:—Robert Byron Duncan, Glasgow.

Edinburgh Royal Maternity and Simpson Memorial Hospital.—The Directors, at their meeting yesterday, appointed Miss Catherine Edward matron of this Hospital in room of Mrs Mather, resigned.

Infectiousness of Tuberculosis.—The Medico-Chirurgical Society of Glasgow, a body consisting of over 200 members, mostly practitioners in the West of Scotland, held a discussion, and arrived at the following resolution at a meeting on the 18th December, 1891:—"That a Memorial be presented to the Town Council of Glasgow, calling their attention to the fact that Tuberculosis is now fully recognised as an infectious disease, and asking them to take the matter into their serious consideration, with a view to the protection of the community from the infection."

Animal Vaccination.—We have received from Mr F. J. Rebman, 40 Berners Street, London, W., who is the London agent for Dr Pissin of the Institute for Animal Vaccination, Berlin, some specimens of the pure calf lymph, and also of the emulsified calf lymph. The pure lymph must be used within from four to six weeks from the date of preparation. The emulsified lymph is far more stable, and preserves its powers unimpaired for an indefinite period in hermetically closed tubes, if kept in a cool place. We used the lymph in primary vaccinations only, and found it quite effective. The vesicles were well formed, contained a good supply of lymph, and in most cases there was no areola. The emulsified lymph took quite as well as the pure lymph.

John Wright & Co., Bristol, have sent us specimens of their Clinical Charts, designed by Robert Simpson, L.R.C.P., L.R.C.S. They are entitled, the "Registered Combination Temperature and Diet Charts, with Clinical Diagrams, for use in Hospitals," and the "Registered Pocket Charts." The first is much the larger, and in addition to the ordinary charts, has on the back two full figures of the body in black, with the viscera inserted in red; the second, a veritable *multum in parvo*, has, besides the ordinary temperature chart, places reserved for the history, for the treatment, and for two small diagrams of the front and back of the thorax and abdomen, with suggestions as to the signs which may be used to indicate the different morbid conditions. The smaller ones can be gummed into a case provided for the purpose. The large chart is a little unwieldy, and would require a very large case if it were to be hung over a bed in Hospital; the second should prove useful to those who wish to keep notes of a case which could be shortly and clearly taken, and easily referred to again. They are both beautifully printed.

SURGEON T. H. PARKE, D.C.L., A.M.D., Medical Officer of the Emin Pasha Relief Expedition, in his book, *My Personal Experiences in Equatorial Africa*, writes on page 357:—"I did my work last evening, and have now commenced to see the sick as usual. My chief Harri calls out 'Dowe, dowe, dowe,' morning and evening; the sick then come crowding around me as I sit in my chair and dole out TABLOIDS [Burroughs, Wellcome, & Co.], which are superior to any form of medicine that I have tried, not only for efficiency and constancy of strength, —as I have repeatedly noticed,—but also for extreme convenience of transport and rapid dispensing. I hope that the Medical Department of Her Majesty's services may see their way to adopt this form of medicine. I can say with confidence—from the experience of over ten years in the medical staff of the army, both at home and abroad, in peace and war, including this expedition—that one man could carry a *larger quantity and of more efficient medicine in the Tabloid form than ten can manage in the present cumbersome system* used by the services. If the TABLOID system were only adopted on service abroad, see what a difference of transport and space there would be. These TABLOIDS are soluble and the doses accurate: why still patronise the pill with its indefinable charm, which becomes concrete and insoluble—and therefore useless—when kept a long time, and the dignified antiquity of those fluids and powders, which are most difficult to pack and to dispense? But the most convincing ground of appeal to the authorities must be expenditure, for the estimates would be lessened—as one medical officer could do the work of two, and dispensers be themselves almost entirely dispensed with." On page 202 Surgeon Parke writes,—"These medicines are all contained in TABLOIDS, which I have found extremely satisfactory, as they are *very soluble*, while they occupy very little space, and *have never lost their strength.* I have never used any therapeutic preparations at all so convenient or so reliable."

TABLOIDS OF COMPRESSED CASCARA SAGRADA.—Messrs Burroughs, Wellcome, & Co., the well-known manufacturing chemists of London, have sent us specimens of these tabloids—each tabloid containing 2 grains of the "dry extract." These are coated with pure sugar, and hence are very agreeable to taste, and are easily swallowed, being lenticular in form. We have much pleasure in highly recommending these tabloids to the notice of the profession. This is an excellent way of administering a most useful drug.

BENZOGOL OR BENZOYL GUAIACOL.—We have received from the same firm a specimen of this new drug. The drug is likely to prove a good substitute for creasote internally, as being much more agreeable to take; it has been recommended in incipient phthisis and has been found to improve the general nutrition. It is administered in powder, and will be found a valuable addition to our remedies in such cases.

Iodopyrin.—Messrs Burroughs, Wellcome, & Co. have also sent us a specimen of this new remedy, which is a compound of iodine with antipyrin, in which one atom of hydrogen is replaced by iodine. It is perfectly tasteless and without odour, and will be found a safe and powerful antipyretic in fevers, and has the advantage of many of the antipyretics in being quite tasteless.

Citriodora Eucalyptus Oil.—We have received from Timbury's Eucalyptus Oil Co. a specimen of this oil, which is a pure volatile oil distilled from the citron-scented eucalyptus, a tree which grows only in a district of Queensland. The oil is quite transparent, and has a pleasant citron odour. It is an oil we can highly recommend to the notice of the profession.

## OBITUARY.

### FRANCIS BRODIE IMLACH, F.R.C.S.

It is our melancholy duty to add another name to the long medical obituary of last year. Francis Brodie Imlach, F.R.C.S. Ed., one of our best-known and most respected citizens, died suddenly on the afternoon of Thursday, December 24th, at the age of 72, being born in June of 1819. The circumstances of his death were of a striking and melancholy nature: while on his way, about 3.30 p.m., to attend a committee meeting at Surgeons' Hall in reference to the Triple Qualification of the three Scottish Surgical Corporations, he dropped down while passing along the South Bridge, and appears to have almost immediately expired. He was at first removed to the Royal Infirmary, where it was found that life was already extinct. His son, Mr Archibald Imlach, was at once communicated with, and through him the melancholy intelligence was conveyed to his daughters, and the body removed to his residence, 48 Queen Street, early in the evening.

Mr Imlach was a native of Edinburgh, being a son of Mr George Imlach, W.S., who died while his family were yet young, leaving four sons and one daughter to be brought up by his widow, which was done in a manner worthy of all commendation. Mr Imlach was the third son, his eldest brother becoming a well-known medical practitioner, Dr Henry Imlach of Liverpool, while the other brothers went abroad,—the one holding the office of Crown Solicitor at Demerara, and the other being attached to the Mahratta Light Horse in India. The daughter became the wife of General Douglas Campbell, Royal Engineers. Mr Imlach leaves a family of one son and three daughters, his wife having predeceased him a few years ago. For some time the subject of dyspeptic attacks, from which he suffered considerably, there were lately added to these the symptoms of angina pectoris, which manifested themselves in an increasing degree of severity during the last two years, and appear to have terminated in the distressing result we have now to record.

Mr Imlach was educated at the High School of Edinburgh, where some life-long friendships were formed by him among his class-fellows. He subsequently entered upon the study of Medicine, and became Licentiate of the Royal College of Surgeons in 1841, of which body he was also elected a Fellow in 1856, and became President in 1879, a position he held with much acceptance for the usual period of two years, when he had the honour of being re-elected for another year. As is well known, Mr Imlach devoted himself to the specialty of Dental Surgery, in the affairs of which department he always took a lively interest, having its promotion and elevation in every way deeply at heart. His training in the technicalities of this branch had been acquired both in Edinburgh and Paris, in the latter of which cities he was resident for some time. On his return he took a leading position as a dentist, and became an intimate friend of the late Professor Sir J. Y. Simpson—being one of those early associated with him at the time of the introduction of chloroform as an anæsthetic. About 18 years ago Mr Imlach retired from active practice, and principally devoted himself to promoting many of the charitable institutions and schemes of public benevolence with which our city abounds, while at the same time his services in many ways remained unabated in forwarding the interests of the College to which he belonged. He was a manager of the Royal Infirmary, at which he was besides a frequent visitor, taking much interest in its welfare and whatever contributed to the comfort of its inmates, whether as nurses or patients. In the Morningside Asylum, where he also had been a manager, his services were always heartily rendered. He was Chairman of Committee at the Orphan Hospital, and took a prominent place in the deliberations held on the re-distribution of its funds, and the changes proposed in the constitution and administration of this charity—his opinions being, in general, adverse to any material alterations in its old arrangements. He had for some time been on the Board of Managers of Donaldson's Hospital, and was the first appointed medical visitor on the charity known as the Dunlop Cancer Fund. In addition to such medical appointments, the calling to which he had devoted so much of his early life had naturally developed an already artistic and mechanical turn of mind, which found a congenial sphere of action in his position for some time of President of the Royal Scottish Society of Arts. He was a member of the Royal Company of Archers, in which body he took much interest, and held the rank of one of its "judges." He was a man of business habits, with a considerable knowledge of mercantile enterprises, and was Chairman of the Edinburgh and Bathgate Railway Company.

In all his public capacities Mr Imlach was of a modest and retiring disposition, but his gentle and kindly manner was at the same time accompanied by an energy of purpose and a sense of probity and honour which always inspired a large amount of confidence and esteem. He inclined to look into every subject with a logical and reasoning scrutiny, which even extended to some of the present day questions of theology. He greatly enjoyed the social amenities of life, although he always manifested that circumspection which his health—especially of late—entailed upon him; but he was a genial and clubable man, and was a member of both the far-famed and somewhat exclusive medical clubs which form so exceptional a feature in the professional life of Edinburgh—the "Æsculapian" and the "Medico-Chirurgical," while he was also a member of the more open Harveian Society. In all of these his presence and companionship will for long be greatly missed. Mr Imlach belonged to the Established Church of Scotland, and was an elder in St Stephen's, a position he resigned only a short time ago. In closing this brief memoir of him, it can in all sincerity be said, that few have left behind so little that could give offence to any of his fellow-men, or so much to be regretted among those who knew him best, in that his gentle companionship and willing services will be afforded us no more.

## FRANCIS DAVID ALEXANDER SKAE, M.D.

Dr Skae died at Lerwick on the 19th December 1891. He had practised in Shetland since 1871, had built up a large practice in and about Lerwick, and held many of the public appointments there. He was greatly liked, and will be very much missed. He was the eldest of the five sons of the late Dr Skae of Morningside, and was born 31st October 1839. Many of their old friends will recall with a feeling of present sadness memories of that genial household with its five stalwart, merry sons, all of whom but one have now passed over to the majority. In none of them were the family characteristics of pleasant manners, humour, and kindly ways more marked than in Frank. All who knew him liked him. The gift of a gracious and winning presence in man or woman, how really great a thing it is! How it tells in our profession! How allied it is to the sympathy which all mankind crave when in trouble! How really healing it is to many cases! Talk of hypnotic suggestion, the firm and kindly assurance of a doctor in whom the patient has confidence that he will get well is often worth all his physic, by the nervous strength it imparts and the stimulus it gives. It is utterly unscientific to ignore this branch of therapeutics. When, as in Dr Skae, there was true kindness and generosity behind the warm, cheerful greeting, then beyond any doubt we have a powerful adjunct to medicines and nursing. Dr Skae studied and took the degree of M.D. of Edinburgh University in 1862, then became Assistant-Physician under his father at the Asylum, afterwards travelled, was then Assistant Medical Officer at the Brookwood Asylum, Surrey, and finally settled down in Ultima

Thule, where he was busy, happy, and beloved; working hard, riding and boating long distances in wild weather, coming home as cheery as ever, and never saying No when asked to go out in the wet and cold to see a poor man after a hard day's work. The Shetlanders are very shrewd, and knew an all-round good man when they had him. The society there is not what some people think it is. Isolation produces a friendly social feeling, and the winter evenings, long as they are, don't seem long to people who are neighbourly. An educated and refined society is found in Shetland, and it will sadly miss Dr Skae, who promoted all social enjoyments, and handled a cricket bat as deftly as a stethoscope.

He was an able man, for he took Goodsir's gold medal besides other distinctions. He wrote several excellent papers in the medical journals, notably one on Climacteric Insanity in this Journal. He leaves a widow to mourn his loss. His practice goes to his nephew, Dr Frederick Skae, whom he had taken into partnership. His pleasant face and laugh will never be forgotten by his old friends.

## THE LATE DR WM. KETCHEN OF MIDDLESBOROUGH.

Edinburgh graduates of 1862, and especially those fortunate men who "clerked with Gairdner," will remember the grave features and lanky muscular form of William Ketchen. They will regret to hear of his death at a comparatively early age, after a long and useful term of work in the busy manufacturing town he chose for his home.

A man of simple integrity and honesty, of good parts and untiring industry, he availed himself to the full of the admirable teaching he got in Professor Gairdner's Wards. After acting for a time as Resident Physician in the Royal Infirmary here, he went to Forfar, but soon migrated to England. He took the F.R.C.S. Ed. in 1872. In his earlier days he reported one or two good surgical cases. The late Dr Watson of Montrose, the Dean of the Medical Faculty of the University of Edinburgh, and the President of the Royal College of Surgeons of Edinburgh, were fellow-clerks with Ketchen during the summer prior to his graduation.

## PUBLICATIONS RECEIVED.

Chas. A. Ballance, M.B., etc., and Walter Edmunds, M.A., F.R.C.S., etc.,—A Treatise on the Ligation of the Great Arteries in Continuity. Macmillan & Co., Lond. 1891.

Catechism Series: Public Health, Parts III., IV. E. & S. Livingstone, Edin., 1891.

Thomas Dutton, M.D.,—Indigestion clearly Explained, Treated, and Dieted. Henry Kimpton, Lond., 1892.

A. V. Ford, M.R.C.S. Eng.—Ophthalmic Notes. Baillière, Tindall, & Cox, Lond., 1891.

Wilson Fox, M.D., etc.,—A Treatise on Diseases of the Lungs and Pleura. J. & A. Churchill, Lond., 1891.

Transactions of the Obstetrical Society of London, Vol. 33, Part 3. London, 1891.

Wm. Whitla, M.D.,—A Dictionary of Treatment. Henry Renshaw, Lond., 1892.

# Part First.

## ORIGINAL COMMUNICATIONS.

### I.—THE DISORDERS OF SPEECH.

By JOHN WYLLIE, M.D., F.R.C.P.E., Lecturer on Medicine in the Edinburgh School; one of the Ordinary Physicians to the Royal Infirmary, Edinburgh.

(*Continued from page* 693.)

### PART II.—THE DEVELOPMENT OF SPEECH; AND THE DEVELOPMENTAL DERANGEMENTS—*Continued.*

3. *Dumbness (Congenital Aphasia) in persons not obviously Imbecile. Lalling on Single Consonants. Congenital Paralysis of Mouth; and Oral Deformities. Developmental defects of the Vocal Mechanism. Congenital Bradylalia and Logorrhœa. Deaf-Mutism.*

#### *Dumbness or Defective Speech (Congenital Aphasia) in Persons not obviously Imbecile.*

THIS is a subject which has of late been attracting a good deal of attention. Sir William Wilde, in his well-known book on *Aural Surgery,* published in 1853, was one of the first to direct attention to the existence of dumbness in individuals who are neither deaf nor the subjects of a pronounced degree of mental imbecility. The returns obtained in the Irish Census of 1851 brought out clearly that not a few individuals were dumb though they were not deaf, this being the condition reported to exist in 334 of 4485 mutes residing in Ireland. Of these, 115 were reported to be imbeciles, 45 to be paralysed, 43 to be both paralysed and imbecile, and 131 to be dumb only, without being either paralysed or imbecile. Inquiring into the circumstances of many of this last class, Sir William Wilde found that in a few the dumbness resulted from local paralysis of the tongue and other organs of articulation. To these cases, further reference will be made presently. In seven other cases, of each of which he has given a special account, there was no such local paralysis; the patients could hear well, could understand what was said, and displayed generally a pretty fair amount of intelligence; only they could not speak. A careful examination of these seven cases, however, shows, in all of them, the existence of peculiarities indicative of some mental defect. They are noted to be restless or mischievous, or to display other indications of want of mental power. To my mind, the records of these cases are distinctly suggestive of the existence of a defective intelligence, strong enough to have acquired the power of interpreting words, but too weak to train the motor side of the Speech-centres to their production.

Dr Broadbent[1] has recorded an interesting case which he thinks may be fairly regarded as one of Congenital Aphasia. The boy, who had not yet learned to speak, was, at the age of six years, run over, and hurt on the left side of the head. When under Dr Broadbent's care at the age of eleven, he was bright and intelligent, could run errands, and saw that he got the proper change if told beforehand how much it should be. He was, however, irritable and passionate with younger children. For "father" and "mother," he said **favè** and **movè**; said **no** and **yes** indistinctly; and **dunno** for " don't know." These were all the words that could be got from him at the first visit. To most questions, he answered **keeger-kruger**. He wrote his name pretty well, and could copy several words, but could not write "yes" or "no" when asked to do so. At a subsequent visit, he showed some improvement. On being, for example, asked the time, which was 2.45, he said **free o'clock**; and when told that he was not quite right, said indistinctly, **about half-past two**.

Dr Hartman discusses the subject at some length in his work on *Deaf-Mutism*.[2] He says that apart from cases "in which Dumbness is produced by functional disturbance, or a malformation of the organs of articulation, he has succeeded in finding in the literature of the subject only one case, described by Waldenburg,[3] in which dumbness seems to have existed, although the hearing was normal and the intellect good. This refers to a boy whose mother was affected, in the third month of pregnancy, with total paralysis of the right side, and with complete loss of speech. From birth, the right half of the boy's body was not so well developed as the left, and he did not learn to speak, although his intellect proved to be well developed, and he could hear. Even when Waldenburg whispered behind the boy's back, the latter understood him, and did what he was asked—' Open your mouth ' ; ' Give me your hand.' This is the only case in which a complete Congenital Dumbness seems to have been ascertained where the power of hearing existed. Unfortunately Waldenburg was only able to examine the case once."

Dr Ireland, in discussing the subject (p. 275), says that among imbeciles " there is a certain class who may be styled Idiotic

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*Medico-Chirurgical Transactions*, vol. lxxv., 1872, p. 155.

*Deaf-Mutism*, translated by Dr Cassels, 1881, p. 24 *et seq.*

" A Case of Congenital Aphasia," *Berlin. Klin. Wochenschrift*, 1873, p. 8.

Aphasics, who remain obstinately mute, though it is clear that they have more intelligence than other children who talk volubly. Sometimes, indeed, they have so much intelligence that people doubt whether they are imbecile at all. I have seen three or four such cases," he says: "they all appear to me to be imbecile children." He records (p. 276) the case of a boy, who used a great many "Words of his own Invention."

Dr V. Uchermann[1] of Christiania has described three cases of Aphasia (two Congenital, and one caused by fright at the age of 2¼ years). One of these cases was complicated with stuttering, and another with some degree of deafness. They were treated with some success at deaf-mute institutions, by the "Oral Method" of instruction.

Dr W. B. Hadden[2] has recently recorded three very interesting cases—boys, aged respectively seven, eleven, and four,—in which, although the intelligence seemed to be fairly good, speech was very defective, the characteristic features of Lalling being very strongly pronounced. The cases are especially valuable, inasmuch as the education of them, when under Dr Hadden's care in St Thomas's Hospital, by the "Oral Method" employed for the education of deaf-mutes, was attended with excellent results.

I have myself met, in hospital and private practice, with about ten cases of children whose speech was very defective, and who yet did not present any very pronounced features of imbecility. From among these I select three, about which I here insert a few brief notes.

CASE I.—*Intelligence not very obviously defective. Dumbness almost absolute. Sudden swearing under Emotion.*—A girl, aged seven, recommended to me by my friend Dr John Thomson, and at present under treatment in the Royal Infirmary. This patient was shy and apparently stupid on admission, but soon got accustomed to residence in the Hospital, and became very lively. She is now bright and merry, though rather mischievous. The expression of the eyes is bright and affectionate, and only now and again shows a little of the restless vacancy so common in imbeciles. Her manners, however, are a little peculiar. When at home in the country, she was in the habit of playing very much with dogs; and now, on rushing up to clasp one's hand, she opens her mouth, which is decidedly large, as if she would like to bite playfully in dog-like fashion. Understands orders quite well, bringing any article when requested to do so. She is almost totally dumb. The only words she is known to have pronounced before admission are Bob (the name of a brother) and Jean (the name of a sister). Ba is her own name for herself. She is much in the habit of biting her lower lip; and when asked to pronounce such a syllable as pa or

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[1] *Archives of Otology*, October 1891; translated by Dr J. M. Mills, New York.

[2] *Journal of Mental Science*, Jan. 1891.

**ma**, she bites her lip in this fashion, and, opening the mouth, emits the vowel without the consonant. The staff-nurse has succeeded in training her to pronounce **pa**, **ba**, **ma**, **ta**, **da**, **na**; but as yet she cannot muster courage to pronounce these syllables to the doctors. She is sometimes mischievous: making inarticulate noises during prayers in the wards, and occasionally waking up, too early in the morning, patients who are friendly to her. On these occasions she has once or twice cried, "Get up, Ba." The most surprising incident in connexion with this case occurred a few days ago. It was the sudden pronunciation of two bad words, when the patient, in the bath-room, had some water thrown over her by another girl. The words were, "You d——d b——"!! During the last few days, this patient has been heard practising, for her own amusement, the pronunciation of the first of these two bad words; and on one or two occasions, when slightly annoyed, she has emitted both of them again. She has also once, from the opposite side of the ward, called to the nurse, "Here—come here." Her sister, aged eleven, who is also a patient in this ward, and who is possessed of good intelligence, states that the patient was never, at home, heard to utter either the words "Come here" or the expression beforementioned. She is now acquiring other new words. To-day she said, "**Go hame**;" and she repeated the word **hame** to me quite distinctly.

Dr Charlton Bastian[1] records a case in some respects similar to this. Patient was a boy who was subject to fits in childhood, till about the end of the second year. When nearly five years old, he had not spoken a single word, and physicians had been consulted as to his dumbness. But some months afterwards, "on the occasion of an accident happening to one of his favourite toys, he exclaimed 'What a pity,' though he had never previously spoken a single word. The same words could not be repeated, nor were others spoken, notwithstanding all entreaties, for a period of two weeks. Thereafter the boy progressed rapidly, and speedily became talkative." When, at the age of eleven, he was seen by Dr Bastian, he spoke in an ordinary manner, without the least sign of impediment or defect. This case recalled to Dr Bastian's mind the old story of the dumb son of Crœsus, who, when at the siege of Sardis his father was threatened by a Persian soldier, is reported by Herodotus to have cried out suddenly, "Oh, man, do not kill Crœsus;" also the story told by Aulus Gellius of the Samian athlete, previously dumb, who, on detecting foul play when casting lots for a contest, suddenly spoke, calling attention to the guilty party and to his act. Gellius adds that he spoke quite freely and clearly ever afterwards. Dr Bastian's observations upon the case are very interesting. He thinks that Speech has been practised by so many generations of men that the power of speech is now inherited by each succeeding generation almost as if the act of speech were an instinctive and automatic one; and that in the normal condition of things, including a normal condition of hearing and the mental faculties, the productive speech-centres easily learn to call forth the requisite movements, whenever the requisite level of structural development has been reached. The young swallow leaves its nest and flies automatically, when it is mature enough to do so. The young child, if it be normal in structure and development, presents something of the same automatic facility, in acquiring, at the proper time, the movements of speech. When a slight abnormality interferes with the action of the speech-centres, it may, Dr Bastian thinks, in some cases be overcome by the stimulus of strong emotion, which may break down a barrier that the weaker volitional stimulus has failed to penetrate.

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[1] *The Brain as an Organ of Mind*, International Scientific Series, p. 606.

CASE II.—(*Private Case.*) *Intelligence fair, but speech extremely defective. Lalling very prominent.*—Boy, aged eight, fairly well grown, does not look imbecile. Father states that he began speaking at the usual time, but made little progress. His intelligence is considered by the father to be not quite so bright as that of the other children. The boy, however, attends school with the others, and can learn his lessons; being able to understand what he reads in books quite well, although not able to pronounce the words. The test sentences of the Physiological Alphabet show that he can pronounce **p**, **b**, and **m**, and **t**, **d**, and **n** quite well; but that he cannot pronounce **k**, **g**, or **ng**. Of the Fricatives, he can pronounce **sh** and **zh**, **f** (sometimes), **l** (sometimes), **h**, **ch**, and **y**. He cannot pronounce **w**, **v**, **th** (1) **th** (2), **s**, or **z**. He gives the numerals as—**un**, **two**, **he**, **hoa**, **hi**, **hit**, **hoten**, **eight**, **nine**, **ten**, **eatten**, **tel**, **hirteen**. The father was given a copy of the Physiological Alphabet, which was explained to him; and he was shown how to teach patient the pronunciation of the defective consonants.

CASE III.—(*Case seen at the Institution for Deaf and Dumb, Henderson Row, Edinburgh.*) *Speech now almost perfect, though patient was at one time dumb.*—This patient, a lad of about eighteen, happened to call upon Mr Illingworth, the head teacher, when I was visiting the Institution. He is now engaged as a tailor in the country. He gives one the impression of being perhaps a little weak in intellect; but, thanks to Mr Illingworth's careful tuition, is able to express himself in Speech quite easily, and in a natural way. Mr Illingworth has kindly furnished me with the following note of his case:—"The boy, H. R., entered this Institution at the age of seven years. His hearing was almost normal, but he had no power of speech, and did not *attempt* to articulate a single word. His general intelligence was below the average. After he had been at school for four years, an attempt was made to teach him to speak by the Oral Method (previous to this he had always communicated by signs and the

Manual Alphabet). Exactly the same means were adopted as with a totally deaf child, and the difficulties in obtaining the correct sounds were almost as great. After four years' instruction by the Oral Method, H. R. was able to speak very distinctly, but with slight hesitation, which, however, was daily wearing off; and when he left school, a year ago, he gave promise of becoming (with encouragement and practice) a very good, free speaker."

A careful consideration of cases in which Dumbness or Lalling Speech exists without pronounced Imbecility or Deafness, leads one, I think, to the conclusion that in the great majority of such cases there is an element of weakness of mind. We all know that some normal minds are specially strong in their receptive qualities, being able to accumulate much information, and yet able themselves to originate but little that is valuable; whereas other minds, not so apt to acquire information, are strikingly original and productive. In imbecile minds, there are probably the same varieties; and one can find it likely that in the development of Speech, which is so closely allied to the development of Thought, the receptive faculties sometimes display a normal activity, while the productive are sluggish, and tardy in their development. Great variation in this respect is met with, as we have seen, even among pronounced imbeciles. In cases of slight imbecility, the weakness may exist almost exclusively in the productive faculties, and the backwardness of Speech-production may be thus accounted for. There may be a want of the active energy required for the training of the Speech-centres, which is in all children a more or less laborious process. At the same time, it may be admitted that there may be cases in which, along with a good general development of both brain and mind, there is a local defect in the productive Speech-centre, due either to arrest of development in utero or to injury at or after birth. A very few of the recorded cases are suggestive of this explanation; but the great majority must, I think, be referred to an original defect of the mental faculties.

Another lesson which, I think, we may gather from a consideration of the foregoing cases, is that the proper method of treatment is to place them under the care of a teacher who can instruct them in articulation by the Oral Method now used for the teaching of deaf-mutes. Dr Hadden's cases illustrate the value of this method; and it is still more forcibly demonstrated by the case of which Mr Illingworth has furnished the record. Probably the best measure to take is to place the patient in an institution for the deaf and dumb. That is what I propose to recommend for Case I., the little girl at present in the Infirmary.

### *Inability to Articulate some Single Consonant.*

I do not think it would be stretching the meaning of the term too much to include the faults of articulation now to be mentioned under the general term of Lalling, and to describe them as cases of Lalling upon some single consonant. In most cases, such an isolated difficulty with a single consonant seems to be but a lingering trace of those natural difficulties which the individual experienced in childhood with many or all of the consonants. With all the others, the difficulty has sooner or later been overcome, but with this particular one it still remains as a peculiarity of articulation. Kussmaul has given a full account of these conditions, and it will not, in this paper, be necessary to do more than enumerate some of the more common and important of them.

(1.) **R** is the consonant which in most of these cases proves the stumbling-block. Sometimes the Uvular **R** is substituted for the Anterior Linguo-palatal (Burring). Sometimes **L** is substituted; a patient of my own, for example, giving, "Lound the lugged lock," for "Round the rugged rock." Sometimes W takes the place of R; in which case the name of the father of medicine would be pronounced as "Hippocwates." In rarer cases, R has been converted into two T's, or into **G** or **Ng**, or been prefaced by an initial **S**, **Ds**, or **Z** (see Kussmaul). There seems to be no doubt that Burring is sometimes due to shortness of the Frenum Linguæ; which prevents the tip of the tongue being elevated sufficiently for the production of a proper **R**. Burring has been termed *Rhotacismus:* when other letters are substituted for **R**, the condition has been termed *Pararhotacismus.*

(2.) **L** frequently presents similar difficulties. When the letter is omitted or defectively pronounced, the condition is called *Lambdacismus:* when other letters are substituted for it, *Paralambdacismus.* The letter substituted may be **T**, **D**, **S**, **Zh**, **N**, **Ng**, or **R**.

(3.) Difficulties with **S** (*Sigmatismus* and *Parasigmatismus*). It may be pronounced with unpleasant sharpness, or letters may be substituted, especially **Th** (Lisping), and **Sh** as in *Mozhesh.* A curious case of my own substituted **Ch** (tsh) for S, and instead of saying "Sarah sat sorrowful," said "Charah chat chorrowful."

(4.) So, in like manner, there may be difficulties with the **Sh** sound, for which **S**, or **L**, or the softened French **Gn**, is sometimes substituted.

(5.) A very common and important difficulty, persisting especially in children who have been slow in learning to speak, is inability to pronounce **K** or **G** (*Gammacismus* and *Paragammacismus*), the place of these letters being frequently taken by **T** and **D**. The **K** and **G** are sometimes not mastered for years after the articulation of all the other consonants has become quite easy.

Other difficulties occur with other consonants, but the difficulties already enumerated are the most common and important.

It is worthy of note at this point, that Lalling upon a single consonant is not entitled to be regarded as any indication of defective intellect, although, as we have seen, persistent Lalling upon many consonants is always very strongly suggestive of such a defect. Lisping, and the substitution of **W** for **R**, are sometimes affected by dandies. The Greek dandies used to substitute **l** for **r**—Alcibiades, for example, pronouncing the word corax, a raven, as colax;—but this at the present day is too suggestive of mere childishness.

### *Defective Articulation owing to Congenital Paralysis of the Tongue, etc., and to gross Oral Deformities.*

(1.) *Congenital Paralysis of the Muscles of the Mouth.*—A case of this kind has been recorded by Sir William Wilde.[1] Patient, a female aged forty, "can hear perfectly well, but has no power over the muscles of her mouth, so that she cannot drink without throwing back her head, neither was she able to suck when an infant, . . . . . cannot protrude the tongue beyond the lips, nor elevate the palate. Can only say, 'No.'"

Another case has been recorded by Hartmann.[2] Patient, a coachman, had remained dumb ever after a passing attack of paresis of left arm and leg during childhood. Examination showed that the motions of the tongue were very sluggish and imperfect. He could not elevate the tip, nor protrude it normally; had marked Lalling in the pronunciation of the few words that he attempted.

Kussmaul observes that congenital or acquired Hypertrophy of the tongue sometimes renders speech impossible, and sometimes merely causes "Stammering" (Lalling).

(2.) As to *Gross Oral Deformities*, the most common and important are Hare-lip and Split-palate. The former, which necessarily interferes with the labials, can be remedied by Surgical operation. The latter, which produces, even in slight cases, a very disagreeable Nasal Snuffling during speech, and which in severe cases may render speech quite unintelligible, can be treated either by Surgical operation or by the insertion into the hiatus of an artificial Obturator or Velum. For full information regarding this latter method of treatment, the reader is referred to the very able work on *Oral Deformities* by Norman W. Kingsley, late Dean of the New York College of Dentistry. This author states that far more perfect speech can be obtained from the employment of suitable Obturators and Vela than has ever been obtained from Surgical operation.

### *Developmental Defects of the Vocal Mechanism, as Displayed in Speech.*

(1.) There may be so great a defect of development in the Vocal Mechanism that Voice-production, even in the crying of infancy, is impossible. If, in such cases, the larynx is not even able to act with sufficient vigour to produce the *spiritus asper* of Whispering, the patient will necessarily be dumb. One of Sir William Wilde's cases seems to have belonged to this category, but to have presented, at the same time, malformation, and some degree of congenital paralysis, of the Oral Articulative organs. The case was that of an intelligent, well-formed, agricultural labourer, aged twenty, who was completely dumb, and "seemingly not capable of giving expression to even *inarticulate* sounds. His hearing was acute and correct, and he had no cerebral disease."

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[1] *Aural Surgery*, p. 466.

[2] *Op. cit.*, p. 26.

(2.) The Voice may retain during life that disagreeable "crack" which in the normal condition is its peculiarity only during the period of puberty. This is stated[1] to be a frequent peculiarity of the voice in adult idiots.

(3.) The voice may fail to undergo the usual change at puberty, and may retain throughout life much of the puerile character and pitch.

(4.) The great developmental Neurosis, in connexion with the Vocal Mechanism, is Stammering; which usually appears when the child first begins to speak, or very soon thereafter. The nature and phenomena of stammering have, in the first paper, already been explained ; but it is here well to remember that it is one of the most important, perhaps the most important, of all the *Developmental Disorders* of Speech. In the great majority of cases, as already explained, stammering is a fault of the Vocal Mechanism, and the essence of the fault is want of promptitude in attacking the first syllables of words. It may here be useful to contrast it with the almost equally important disorder of Speech which we have called Lalling, using this word in very much the same sense as the Germans use the word "Stammering" (Stammeln). Lalling, as has been shown, is due to want of precision and want of cleverness in the action of the Oral Articulative Mechanism; and this want of precision, when persistent, and displayed in the enunciation of many of the consonants, is, in the great majority of cases, as has been shown, the result of imperfect education of the Speech-centres, owing to defective intelligence and power of attention. Apart from those cases in which defective articulation is displayed only in connexion with one consonant, and those other cases where local paralysis or deformity is sufficient to account for it, Lalling articulation, in the great majority of cases, means imbecility of mind. It is very different with Stammering (Stottern). Stammering, associated with Lalling, is indeed often enough found in imbeciles; but in the great majority of cases Stammering exists by itself, and is in no way indicative of deficient intelligence. It is, however, very frequently connected with the Neuropathic diathesis; being more especially apt to be associated with Nervousness, and instability of the Emotional nature. The frequent association of this defect of the vocal mechanism with a certain Weakness of Inhibition in the emotional nature, recalls to one's mind the physiological relationships of the voice as a means of expressing emotion. In like manner, the equally intimate connexion of Lalling with Imbecility, recalls the connexion which has been shown to exist between the development of Oral Articulation and the development of the Intellect. Some of the German authors[1] have described Stammering (Stottern) as a *Dysarthria Syllabaris* (a difficulty of articulating syllables), and Lalling as a *Dysarthria Literalis* (difficulty of articulating letter sounds), but I regard this as an erroneous method of classification. When a patient stutters on a voiced consonant, such as m or d for example, because he does not throw the voice into it, he stutters upon a letter, not upon a syllable. The German definition of Stammering (Stottern) is therefore founded upon a false basis. The true physiological basis upon which to found distinctions between the two defects, is the analysis of Speech into its two component elements, viz., the Vocal and the Oral Articulative. The common variety of Stammering (Stottern) is due to want of promptitude in the action of the Vocal Mechanism; and the faulty articulation of Lalling (Stammeln) is due to the want of precision in the action of the Oral Articulative Mechanism. In the normal child, this want of precision must be attributed to insufficient practice; in the imbecile adult, to want of the intelligence required for the education of the Speech-centres.

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[1] Eulenburg's *Real-Encyclopädie*, edition 1881, vol. vii., article "*Idiotie*," by Dr W. Sander, p. 109.

### *Developmental Bradylalia and Logorrhœa.*

Bradylalia (slowness of Speech) is a condition which displays itself normally, to a greater or less extent, in every healthy child, during the earlier stages of its progress in Speech-production. Speech is as yet difficult, and the difficulty betrays itself in a certain deliberation of utterance. The same deliberation is displayed permanently in the speech of a certain number of imbeciles. Even some adults who are not imbecile, but whose mental operations are habitually performed with exceptional deliberation, display it. Speech in these is slow and often scanty. They are "men of few words," and these few are always deliberately emitted.

The opposite condition, that of Logorrhœa, is also frequently met with in those of weak mind, or at least of weak mental inhibition. These are the chatterers, who say, in very many words, little that is worth listening to. When the words crowd upon each other so much as to interfere with their distinct articulation, the condition has sometimes been called "Cluttering." In his admirable work on *The Neuroses of Development*, recently published, Dr Clouston describes a case of this kind. The patient, an imbecile man of middle life, expressed his feeble thoughts so volubly, that, although "articulation is normal when slowly performed, the moment ordinary speech begins, the mental co-ordination is lost, and we have a torrent of half-articulated words, following each other like peas running out of a spout."

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[1] See Kussmaul, *op. cit.*, p. 633. Also article *Stottern*, by Arndt, in Eulenburg's *Real-Encyclopädie*, vol. xix. p. 173.

The defects displayed in developmental Bradylalia and Logorrhœa are thus to be regarded as indicative rather of mental peculiarities, than of defects in the action of the Speech-Mechanisms.

### *The Language of Deaf-Mutes.*

When a child of three or four years is brought by its parents for examination, because it has not yet begun to speak, and they are getting alarmed about its dumbness, the physician is called upon to decide as to the cause of the dumbness. At this early age, the case is not necessarily one of much gravity. If the child is found, on examination, to have good hearing; and is reported to show, in its play and in its general conduct, that it interests itself in matters that interest children; to be cleanly as to evacuations; and to be, in disposition, moderately affectionate and manageable; the case may be one in which the development of Speech, though tardy, will in the long run be satisfactory. All that the physician need do, in such a case, is to recommend patience, and the encouragement of the child in its attempts to speak. It will be well, at the same time, to examine the mouth, in order to see if there be any peculiarities about the Oral Structures that may be interfering with articulation; although it must be remembered, that, apart from Hare-lip and Split-palate, peculiarities of this kind are by no means common.

In every case of dumbness in a child, the two most important questions that the physician will be called upon to decide, are:—(1.) Is the child imbecile? (2.) Is it deaf? In many cases, unfortunately, the indications of imbecility will be only too evident. The child may have a vacant expression, in some cases torpid and passive, in others restless and yet purposeless; often it will be reported that the child is passionate and unmanageable; the parents may have been forced to observe its inability to interest itself so much as other children in toys and play; and it may also be heedless as to evacuations.

If the case be one of Deafness, and the child be otherwise normally constituted, its whole expression and conduct will be very different from those of an imbecile child. Already, even at this early age, there may be a certain wistfulness in the expression of the eyes, indicative of the child's instinctive employment of the sense of sight with a diligence that may in some measure compensate for the absence of hearing. The hearing should be specially tested. Some one should stand behind the child and clap the hands, or call his name, both aloud and in a whisper; and note should be taken of what response the child makes to such stimuli. It should be remembered that even partial deafness may cause dumbness. In such a case, it will be found that the child responds to loud sounds, but makes no response when his name is whispered or when other slight sounds are made close behind him. For the future training of the child, it is most important to ascertain whether the loss of hearing is very marked or comparatively slight. The majority of deaf-mutes are not absolutely deaf to very loud sounds.

About the various forms of language that may, for the purposes of expression, be employed by Deaf-Mutes, I should like to say a few words.

I. *The Language of Natural Signs.*—This is a most interesting subject, regarding which the reader will find full information in any of the works upon Deaf-Mutism, but perhaps nowhere a more striking account than in the second and third chapters of E. B. Tylor's well-known work on the *Early History of Mankind.* Without entering into any detail about the Natural Language of Signs, I may say that essentially it is merely a development of that language of facial expression and gesture that is employed by every child and adult, more or less. In the deaf-mute, it lacks the aid which is given to it, in the natural child, by the expressive tones of the voice,—the voice of a deaf-mute being harsh and discordant, and of very little expressive power. But, on the other hand, in the deaf-mute, gestures and signs attain to a development far ahead of that displayed in the normal individual. It is the only language which the uneducated deaf-mute can employ for purposes of expression, and Nature herself teaches him to employ it with wonderful power and expressiveness. The basis of the language is essentially Pictorial Representation of things and actions. A red tent can be represented by making the outline of its shape in the air with the hands and touching the lip to show that it is red. Cowering or crouching may be used as the indication of fear; crossing the arms and shivering as that of extreme cold. "To put the forefinger against the closed lips is 'silence'; but the finger put into the mouth means a 'child.'" In the Berlin Deaf-and-Dumb Institution, "to pull up a piece of skin on the back of one's hand is 'flesh or meat.' Make the steam curling up from it with the forefinger, and it becomes 'roast meat.' Make a bird's bill with two fingers in front of one's lips and flap with the arms, and that means 'goose;' put the first sign and those together, and we have 'roast goose.' . . . . To express the pronouns I, thou, and he, I push my forefinger against the pit of my stomach for 'I'; push it towards the person addressed for 'thou'; point with my thumb over my right shoulder for 'he'; and so on." This Language of Natural Signs is the mother-tongue of the deaf and dumb. Without multiplying examples of it, I may add that its syntax is different from that of ordinary speech, in so far as it invariably follows the rule of putting the most important element of the sentence first in order. Thus, "I am hungry, give me bread," is expressed as "Hungry me, bread give"; and "Bring a black hat" becomes "Hat black bring." In every community of deaf-mutes, certain arbitrary or conventional signs are always added to the signs suggested by Nature; and the language is thus made fuller and more efficient. Thus we are informed by Mr Tylor that one of the teachers at the Berlin Institution was indicated among the boys by a sign suggesting the loss of an arm, not because he wanted an arm, but because he came from Spandau, and one of the boys who had been to Spandau had there seen a man who had lost an arm. This Natural-Sign Language of deaf-mutes has called forth the admiration of many who have had opportunities of studying it. The reader will find in Mr Tylor's work an eloquent description of the religious service conducted by one of the teachers of the Berlin Institution for the benefit of the uneducated deaf-mutes of the city. Mr Tylor says,—"No one could see the parable of the man who left the ninety-nine sheep in the wilderness, and went after that which was lost, or of the woman who lost the one piece of silver, performed in expressive pantomime by a master of the art, without acknowledging that for telling a simple story and making simple comments on it, spoken language stands far behind acting." It must, however, be admitted that this language is, after all, little fitted to impart to a deaf-mute any high degree of intellectual culture. "Its poverty is obvious . . . . it is calculated for the expression only of the ordinary emotions and tangible things.[1]"

II. Taking the above Language of Natural Signs as a basis, the Abbé de l'Épée and his successor the Abbé Sicard added to it a vast number of conventional or arbitrary signs, to represent a great variety of words, including many prepositions, conjunctions, etc. They perfected their system to such a degree, that they could, in this language of natural and artificial signs, dictate to their pupils whole sentences of words, which the pupils could correctly transfer to writing. They supplemented this system by teaching their pupils to write and draw, and to spell words upon the fingers by means of the bimanual alphabet. These methods have been largely followed in many other countries throughout the world, but the artificial signs have, as a rule, not been so much adopted as the other parts of the system.

III. In some schools, the pupils are taught to express themselves by writing only, or by writing and the Manual Alphabet. Written words are directly associated with objects, and the mental images of these words are eventually made to play, in the processes of thinking, the same part that, in persons not deaf, is played by the sound images, or memories, of audible words.

IV. In many of the best schools, Oral Speech is taught; artificially, by means of articulation and lip-reading. The pupils are at the same time taught to write.

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[1] Degerando, quoted by Arnold, in *Education of Deaf-Mutes*, p. 132.

V. In many schools, the best parts of the Oral and Sign Systems are combined; only the most intelligent pupils being fully instructed in Oral Articulation and "Lip-Reading."

At the present time, it may be said that, for conducting ordinary conversation, the chief rivalry is that between the practice of the Manual Alphabet, by means of which an educated deaf-mute can express himself almost as quickly as an ordinary person can by word of mouth, and the practice of Oral Articulation and "Lip-Reading," which, when successfully acquired, enables the deaf-mute to express himself by word of mouth like an ordinary person, though his tones are apt to be more or less harsh and unmusical. The latter practice involves a difficult process of education, and the exercise by the patient of the closest attention and observation. But, when successfully mastered, it has the great advantage of enabling the patient to understand what is said to him by anyone, and make himself understood by anyone he may speak to. It thus enables him to mix in ordinary society, and to converse with people who cannot use the Manual Alphabet. This Oral Method, which was first systematically taught in a school, in the last century, by Samuel Heinicke, a Saxon schoolmaster,[1] has always, since his day, been much cultivated in Germany; and, at the present time, is beginning to find much favour everywhere, throughout Europe and in America. How successful it is sometimes, is illustrated by an anecdote told by Kussmaul regarding a conversation with one of his hospital patients. He had for some time been freely conversing with this patient; and, having observed nothing unusual in his manner of expressing himself, was afterwards much surprised to learn that he had been conversing with a deaf man, who had understood all his remarks by the method of lip-

[1] "It is hardly just to call Heinicke the founder of the German method. He only gave a more logical application to the principles taught by Bonet, Wallis, and Amman, but he clearly perceived that there could be no compromise between speech and signs as fundamental in teaching language." Arnold's *Education of Deaf Mutes*, p. 85.—Heinicke began teaching in Dresden in 1754. In 1760, Thomas Braidwood founded a school in Edinburgh, and taught "lip-reading" very successfully. He was visited by Dr Johnson, and is referred to in laudatory terms in the latter's famous account of his tour to the Hebrides. Braidwood afterwards, in 1783, removed to London, where he was soon the first head-master of the first public institution established in England for the education of deaf-mutes. The school founded by him in Edinburgh has been kept up ever since, and now occupies excellent premises in Henderson Row. Edinburgh also has, in Donaldson's Hospital, a splendid Institution which is partly devoted to the education of Deaf-Mutes.

A century before the time of Heinicke and Braidwood, "Lip-Reading" was successfully taught in Spain by Pedro Ponce de Leon, a Spaniard of illustrious birth, and his successor Juan Pablo Bonet, a capable man of business, employed in official services. It was in Spain, also, that the one-handed alphabet was invented. The two-handed alphabet, used generally in this country, was invented, at a later date, in France.

reading. In this country, many cases have already been successfully taught by this method; but it is universally admitted that success has hitherto not been so great as it has been in Germany. The reason alleged is that the English language is not so well fitted for "lip-reading" as the German is. There can be no doubt that the chief difficulty in regard to English is, not that the sounds of the words are more difficult of pronunciation, but that the spelling of the words has departed so widely from their sounds. The spelling, in English, is now far from being strictly phonetic, whereas in German it still continues to be almost strictly so. The deaf-mute can thus read a German word correctly if he has mastered the phonetic values of the component letters. Knowing the letter-sounds well, he can even practise reading aloud by himself without much danger of falling into errors of pronunciation. It is very different with the English deaf-mute. Even a person not deaf (say a foreigner), in learning English, finds the spelling of the words no sure guide to their pronunciation. What then must be the difficulties of a deaf-mute, who cannot always have a tutor at his elbow, to show him, by "lip-reading," how each word is pronounced? In America, this difficulty has been grappled with in a special way. It appears that, in some of the American institutions, Melville Bell's system of "visible speech" has been adopted, this system having an alphabet (altogether different from the ordinary one) in which each letter has a definite phonetic signification. In this country attempts are made to get over the difficulty by phonetic spelling. But I do not think that phonetic spelling has been made so accurate and easy of comprehension as it might be made. In particular, I think it would probably be of great advantage to deaf-mutes to have a phonetic alphabet in which the relationships of one vowel to another, and of one consonant to another, are clearly displayed. If such a Physiological Alphabet as I have given in the first paper were adopted for the teaching of deaf-mutes, each letter would have a definite phonetic signification, so that words spelt phonetically by it might be read with ease by the deaf-mute, if only he had previously mastered the individual letter-sounds. In order to adapt this Physiological Alphabet to the teaching of deaf-mutes, it would be necessary to write the vowel-sounds in such a way as to enable the deaf-mute clearly to distinguish one from the other. No change would be required in the alphabet of consonants: they might be written exactly as they are in the alphabet of the first paper. In making the following attempt to improve the manner of writing the vowels, I have taken a hint from Dr Hullah's method of indicating the varying breadth of vowel-sounds. I have also added to the English vowels several foreign vowels, and a few diphthongs. For the alphabet of consonants, the reader is referred to the Physiological Alphabet given in the October number of this Journal.

I. *Long Vowels*, as in the sentence:—

Even ancient elves are awed over oozing.  
ē ā ê āā ââ ō ōō

II. *Equivalent Short Vowels*:—

ĕĕt ĭt ĕt ăt ŭt ŏt ŏŏt

III. *Foreign Vowels*:—

German ü, as in über; French *u*, as in user;[1] German ö, as in ölig.[2]

IV. *Diphthongs*:—

(1.) English u as in p*u*re e͡u.  
(2.) „ i as in p*i*le a͡i.  
(3.) „ oi as in bo*i*l o͡i.  
(4.) „ au as in h*ow* a͡u.

By way of example, take this sentence, spelt phonetically in accordance with the foregoing:—

Spĕĕtsh ĭz la͡ik klŏt$\overset{1}{\text{h}}$ ŏv Arrăs, ōpĭnd ănd pŏŏt ăbrââd, whārba͡i t$\overset{2}{\text{h}}$ĭ ĭmădzhĕrĭ dŏt$\overset{1}{\text{h}}$ ăppēr ĭn fĭgŭr; whārăz ĭn t$\overset{1}{\text{h}}$ââts t$\overset{2}{\text{h}}$ā la͡i bŭt ăz ĭn păks.[3]

If I were a teacher of deaf-mutes, I should, I think, have the first series of lessons printed entirely in such a phonetic alphabet. The next lessons I should have printed in double lines, of which one would be phonetic and the other in the ordinary spelling. Later, the two spellings might be given on opposite pages. Still later, only a few of the more difficult words might be repeated in phonetic spelling, after the ordinary spelling; and finally, the lessons might be printed entirely in the ordinary spelling. I submit this suggestion, respectfully, for the consideration of those who may be specially interested in the education of deaf-mutes. Perhaps I may not be considered too bold in offering it, since I have, of late years, been a good deal occupied with the study of the Physiological Alphabet.

The system of "Lip-Reading" is rapidly gaining ground everywhere. It has no rival in its capability of enabling deaf-mutes to mingle in ordinary society. It is also claimed for it, by its advocates, that it is a better aid to thinking than any of the other methods. Although, as has been truly said, the uneducated deaf-mute is a standing refutation of the opinion that there can be no rational thinking without words, it is nevertheless the case that his thinking can never attain to a high level until he has been educated to the use of words. In order to think in words, he must first be able to call up their images in his mind. No process of training will ever enable him to call up their sound-images. For him, sound has no existence. But, in the absence of sound, he can, when educated, store up the visual images of written words; and he can use these in the processes of thinking, in place of the sound-images employed by others. If trained to Oral Articulation and Lip-Reading, he can employ other word-images or word-memories, of a kind more closely allied to sound-images. He can then employ the memories of production that are imprinted by the muscular sense of the motor mechanism and by the tactile sense of the mucous surfaces used in speech. To these, in forming his concepts of words, he can add the sense of vibration produced by the voice, and also the visual memories of the movements observed in others when he is practising "lip-reading" of their speech. It seems that the memories or concepts of words thus obtained are the best working substitutes for the sound-memories which ordinary people employ in the processes of thinking. Even in France, where the sign systems were formerly so much in vogue, the system of Lip-Reading is now rapidly coming to the front. Of recent works on the subject, one of the best is by a professor at the National Institute for Deaf-Mutes in Paris.[1] In this country also, rapid progress is being made; and many persons have been most successfully trained in Lip-Reading. Nevertheless, great difficulties are met with in the training of large numbers; and success is much more probable when a teacher devotes himself almost entirely to one or two pupils. The language is partly accountable for this, and especially, I think, the spelling of the language. I think it is reasonable to believe that the difficulty would be materially lessened, if phonetic spelling were rendered accurate and easy of comprehension.

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[1] I print the French *u* in italics merely to distinguish it from the other varieties of u.

[2] For the German ü, the Resonating chamber within the mouth is shaped as for ē in *even*; for the French *u*, it is shaped as for ê in *elves*; for the German ö, it is shaped as for āā in *are*. In all three, the lips are brought into very much the same position as they are for the pronunciation of ōō in *ooze*. The German ö might be used to represent the vowel sound in some English words, such as *bird*.

[3] Plutarch, *Life of Themistocles*.

(*To be continued.*)

## II.—ON ASTHMA GRAVIDARUM, WITH AN ILLUSTRATIVE CASE.

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(*Read before the Obstetrical Society of Edinburgh*, 13*th January* 1892.)

ONE of the most able writers on bronchial asthma defines it as "a neurosis depending upon tonic spasm of the bronchial muscles, and caused by faulty innervation of the pneumogastric nerve."

The exciting causes of it may, therefore, be divided into those which act on the nerve directly, and those which are reflected from some remote part or organ.

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[1] *Comment on fait parler les Sourds-Muets*, par L. Goquillot, 1889.

That it is essentially a nervous disease, and due in some instances to remote reflex influences, is well illustrated by its relation to uterine affection. This is referred to in very general terms in gynæcological works.

Asthma, in those women who are the subjects of it, appears to occur with more severity at the menstrual period. This has been shown by Hyde Salter and others to be an established fact, more especially with those forms of asthma which show a monthly periodicity. In them, if the menstrual period should occur, the symptoms are markedly increased. I have only met with two cases of asthma where this monthly periodicity was established. In one case the menstrual period was included in the periodic return only once every second month, and each time it was so the attack of asthma was correspondingly severe. In the other the patient ceased to menstruate entirely when she was thirty years of age, and her asthma completely and entirely ceased simultaneously.

Dr Waring Curran has pointed out that asthma occurs most markedly at the menstrual period in women who are the subjects of fibroid tumours. The paroxysms are then severe, and the menstruation is, of course, excessive and prolonged. In three separate cases which he observed, he found no evidence or symptom of asthma till a day or two before the catamenia commenced, and, without treatment, the asthma passed away as the patient recovered from the menstruation. The same author quotes a case of ovarian dropsy which he had tapped on five different occasions, and who always suffered from asthma at every menstrual period.

The most persistent cases of asthma originating in relation to the uterus seem, however, to be those which are connected with fibroid tumours, and, indeed, the suffering of some women in this way is particularly severe, inasmuch as the asthma is usually of that dry form without any expectoration to relieve it. One of the severest cases of asthma I ever witnessed in a woman was in a patient who suffered from a fibroid tumour, and with irregular hæmorrhages. As her uterine tumour increased, and as her hæmorrhage was profuse and her asthma of frequent occurrence, I removed her ovaries and tubes, the result being that her attacks of asthma, which previously were fortnightly in their occurrence, have now almost entirely disappeared, occurring only at long intervals when she changes from one part of the country to another.

The following cases recorded by Dr Hyde Salter are markedly illustrative of the uterine origin of asthma and of its relation to parturition:—

C. B., aged 42, married, with several children, has been troubled ever since the age of 16 with asthma, and also with sneezing to such a degree as to amount to a positive disease. Her attacks of asthma were only occasional. These symptoms came on apparently from want of development of the menstrual function; when, however, that appeared she got no better. But when she married *her asthma at once left her.* The only times at which asthma has reappeared are during labour at each of her confinements.

Mary H., a lady aged 40, has had asthma regularly for the last three years, but for years previous to that she had it occasionally, under the following curious circumstances:—She has four children, the eldest being 15 years of age. At each confinement she has had an attack of asthma. Up to the last three years she has only had asthma under these circumstances. Her youngest child is 10 years old.

But the case which specially induced me to refer to this matter is one where asthma was induced immediately on the occurrence of pregnancy, was co-extensive with pregnancy, and ceased instantly when abortion took place.

The case was as follows:—She was a tall, anæmic, highly nervous female, æt. 25, on a visit to Edinburgh. She sent for me late one evening complaining of some cough and difficulty of breathing. She had very slight bronchial expectoration. She told me she had been suffering in the same way at intervals for a month previously. There was no indication of any pulmonary affection beyond a little bronchial breathing. Her menstruation had been suppressed for two months. To this I did not give special heed, believing that the change north and her anæmia quite accounted for it. Though anæmic, her menstruation had always been quite regular till two months ago. She had enjoyed good health previous to this illness. Her first attack of pain in her chest with difficulty of breathing came on when she expected her menstrual period—that is five weeks from the time I saw her. She had suffered on five or six occasions during the past six weeks. The attacks had come on with unfailing regularity immediately after retiring to bed about ten o'clock.

The following night I was again summoned hurriedly to see her, and found her suffering from a violent paroxysm of asthma. She was sitting up in bed, her hands grasping her knees, her shoulders were drawn up, and her face anxious and of dusky hue; her eyes were staring, her nostrils dilated, and her hair and forehead wet with perspiration. I sent for the usual remedies—De Joy's cigarettes and stramonium—but before these arrived the attack had passed off. I left very careful instructions as to diet and regimen, with a view to warding off another attack.

The succeeding afternoon the patient sent for me, complaining of pain in her pelvis. She told me that her period had returned slightly. Late in the evening of the same day I saw her in a most violent attack of asthma. It lasted quite three-quarters of an hour. Her face when I saw her was livid, her lips blue. She was sitting up in bed grasping a stool; her eyes were bloodshot. The sterno-cleido-mastoids were very firmly contracted, and stood out very distinctly. After it had passed over she complained of pelvic pain and much bleeding. I examined and found copious hæmorrhage going on from the vagina, and large clots lying in the bed. These I removed and examined, and found an entire ovum of about two months. She made an excellent recovery, and menstruated regularly thereafter, and has never had a recurrence of the respiratory trouble. I made careful inquiry as to her symptoms. She had never had morning sickness, nor any indication of pregnancy beyond the suppression of her menses. Although I examined her chest before the abortion repeatedly, I was *not* struck by the areola; and after the abortion did actually occur, I examined the breasts, and found the pigmentation and Montgomery tubercles very slightly marked indeed. To sum up the points of interest about this case, they seem to be these:—

1. That the asthma occurred originally at the time of the first menstrual suppression. This is somewhat similar to the behaviour of morning sickness, which, though it is sometimes coincident with conception, usually does not appear till the second month. It seldom persists after the fourth. Whether the respiratory branches of the vagus would have behaved in a similar way, and the asthma disappeared after the fourth month, the issue of my case did not permit of observation. Hyde Salter, however, records a case in which asthma occurred coincidently with conception, and where the attacks occurred every month until the patient was delivered at the eighth month. This patient had no morning sickness whatever. It seems therefore clear that irritation to pulmonary branches of the vagus does not act in the same way as a similar irritation to the gastric branches.

2. The period of the day at which the paroxysm of asthma may occur is variable, yet it seems most usual after midnight, and nineteen out of twenty cases occur between two and three in the morning. In its occurrence immediately after retiring to bed, it more resembled a case of cardiac asthma. This, of course, naturally suggests the question, May this not have been a case of cardiac asthma?

I think not, in so far at least as the asthma was due to any lesion of that organ. She was examined by others as well as myself, and no trace of organic disease could be discovered; not only so, though to all appearance she was anæmic, yet there were no murmurs of any kind to be heard over the cardiac area. Besides which, cardiac dyspnœa is always aggravated by exertion; and again, even when the paroxysm has passed off there is always more or less embarrassment in cardiac cases, where there is none in asthma. And here it may just as well be mentioned that the other conditions, such as spasm or œdema of the glottis, are not likely to be mistaken for this, because Biermer has pointed out an important symptom by which all these affections can be distinguished from asthma, viz., "Dyspnœa during *expiration* is just as characteristic of narrowing of the finer bronchi as the same condition during *inspiration* is of croup and other forms of laryngeal stenosis."

Spasm of the diaphragm is the only condition for which this patient could have been mistaken. I have not, to my knowledge, seen a case of this affection, but the following description of it seems to me to render any such mistake impossible:—

"This rare disease, which is almost always associated with hysteria, is characterized by a short inspiratory movement, during which all the muscles of inspiration are brought into action, and we have the same sinking in of the more yielding portions of the thorax which has just been mentioned as one of the distinguishing features of laryngeal stenosis. After this the thorax remains fixed for a few seconds, the muscles of inspiration remaining in a state of contraction. There then ensues a quick and powerful expiratory effort, accompanied by a sound not unlike that of a hiccough; then another inspiration, with a repetition of the above symptom; and so on until the attack is over. It will be seen from this description that this affection resembles singultus more than asthma, and that there is but little likelihood of its being mistaken for the latter disease."

I have mentioned these sources of error, because the case I have just recorded is so rare that I think it well so far as possible to eliminate all possibility of mistake.

The third point of interest is that the pulmonary branches of the vagus seemed to be entirely affected, to the absolute exclusion of the gastric branches, for there was no sickness throughout. Indeed, it seemed as if the pulmonary branches were affected instead of the gastric; indeed, as if the asthma had taken the place of the ordinary sickness. The patient was just the woman in whom one would expect the reflex symptoms of pregnancy to be most marked. She was a highly nervous woman, who had become pregnant under distressing circumstances; but although reflex symptoms were quite to be expected, yet it is difficult to explain why the vagus in its pulmonary branches should be affected more than the usual gastric branches, more especially as the patient never had any pulmonary or cardiac affection, nor had any hereditary tendency thereto.

4. The abortion was no doubt due to the violence of the attack. It is a fact that during expiration the abdominal muscles are firm and tense, especially the recti, and the pressure exerted is often sufficient to empty the bowel and bladder. The pressure and extra determination of the blood of the attack of the previous night were sufficient to separate the ovum, as was shown by the pain and hæmorrhage the following day. The increased violence of the last attack, due no doubt to the activity of the uterus, ended in the entire expulsion of the ovum.

BIERMER, "Ueber Bronchial Asthma," *Sammlung Klinischervorträge*, No. 12.
"Zur Kentness des Bronchial Asthmas," Virchow's *Archiv*, Band 54, 1870.
*Asthma, its Pathology and Treatment*, by Hyde Salter, 1868.
WARING CURRAN, *ibid.*

## III.—SURGICAL IMPRESSIONS, THE RESULT OF A FLYING VISIT TO SOME AMERICAN HOSPITALS.

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HAVING recently spent eighteen days in America, visited seven hospitals, and seen several surgeons, I think the relation of some of my experiences may interest certain readers of the *Edinburgh Medical Journal.*

In crossing the Atlantic I was fortunate in meeting Dr Draper, Physician to Roosvelt Hospital, New York, and Dr Kelly, Gynæcologist to the Johns Hopkins Hospital at Baltimore, who were returning after a holiday in Europe. Armed with introductions from these gentlemen, I was enabled in a short time to see a good deal of surgical work, and met with a very agreeable reception. An introduction is, however, not essential. The American surgeon is a good fellow, and it will be a Britisher's own fault if he cannot get along with him.

I arrived too late to attend the Washington Medical Congress, where the attendance of several distinguished British surgeons (Professor Chiene among them) at the meetings was much appreciated.

The first hospital I visited was the Roosvelt in New York, with about 250 beds. This hospital is an excellent one, but cramped for ground space, and not built in accordance with the latest views on hospital construction. It will soon, however, for the building is nearly completed, be possessed of the finest operating theatre in the world, erected at a cost of £80,000. The sum was left by a wealthy benefactor, with the express stipulation that the whole of it should be expended on this object. The area is to be wholly marble, and the difficulty of disposing of so much money is being met satisfactorily by making it quite an extensive building. There are to be isolated ward-rooms at the top; the operation-room, porter, and nurse are to have quarters there. Photographic, bacteriological, and pathological rooms are to be provided; and a number of special rooms are to be set apart for instrument sterilizing, and disinfecting apparatus, dressings and the special appliances for preparing them, and consulting and other rooms for the staff.

In the hospital, among several interesting cases, I noticed a boy who had recovered after an operation for perforating ulcer of the vermiform appendix with general peritonitis. The abdomen had been opened and cleansed, and the vermiform appendix removed by Dr Hartley. This was the only case known to have recovered after such a lesion, in New York.

Another youth was recovering after an operation for intestinal obstruction, due to a band and adhesions; and the interesting feature in his case was that a year before, he had been laparotomized for tubercular peritonitis.

Dr M'Burney had several cases on which he had performed an operation of his own for the radical cure of hernia. He ligatures the sac at its neck, removes it, slits up the whole length of the canal and the skin covering it, sutures the upper skin margin to the conjoined tendon, the lower to Poupart's ligament, draws the inverted skin margins towards each other by deep sutures, and packs the resulting ditch with dressing, from the bottom, till the wound is healed. The object is to secure a firm fibrous barrier against the descent of another hernia. The large gash, held by button sutures, looks formidable, but the results are said to be excellent; and I had the opportunity of examining a young man who turned up three months after operation, meanwhile having been at work, and in him the site of operation appeared to be much the strongest and most resistent part of a strong abdominal wall.

The genito-urinary cases are kept in a separate ward, and have male attendants. A considerable number of buboes were under treatment during my visit; and, judging by what I saw, I think it would be fair to assume that bubo in America must be a much more serious disease than with us. It is the rule to dissect out all the infected glands, and to remove all infiltrated skin. The result necessarily is, in some cases, a huge granulating surface in the groin. One man I saw had had the misfortune to have the glands and skin on both sides affected, and when seen by me, had a granulating area on each side quite the size of my outspread hand. The same treatment was adopted in Vienna when I was a student there in 1878.

There were several cases of urethral stricture under treatment, and I was surprised to learn that all strictures are dealt with by internal urethrotomy. Those in the penile portion are cut only; those behind are cut, and in addition the bladder is drained through the perinæum. Dr M'Burney has invented an ingenious instrument for making a small perineal opening just large enough to admit a drainage-tube, instead of the larger incision necessary when the bladder is drained in the ordinary way.

The bougies used in the after-treatment are terrible-looking weapons, and "bougie day" did not appear to be anticipated by the patients with feelings of unmixed satisfaction. Surgical principles are not elastic enough to allow of such a radical difference of opinion and practice as I saw there and see with us. If they are right we are wrong.

I had the opportunity of examining some cases recovered after operations for the removal of malignant growths. The operative treatment adopted is much more radical than is the rule with us, —*e.g.*, in an ordinary case of scirrhus of the mamma it is usual to remove a large area of skin covering and surrounding the growth, to take away the pectoralis major, divide the pectoralis minor, and dissect out from the axilla everything except vessels and nerves. The skin gap is filled up by a Thiersch's graft,—an excellent method, not sufficiently used here. I had the opportunity of seeing that the usefulness of the arm was but little impaired by the loss of the pectoralis major.

In cancer of the tongue an incision is made through the centre of the lower lip, down through the middle line of the chin and neck to the hyoid bone. A second incision crosses this, running along the lower edge of the body of the jaw from one facial artery to the opposite. The flaps so marked out under the chin are reflected, the glands dissected out, and the lingual arteries tied. The lower jaw is now sawn through in the middle line, and the floor of the mouth and tongue removed. In one case, I think a patient of Dr Halsted's of Baltimore, the upper part of the larynx and a considerable portion of pharynx had been removed in addition, and a year after the patient was in excellent condition and free from recurrence.

In all operations the most strict aseptic and antiseptic precautions were used, here as in all other hospitals I visited, the operator, his assistants, and the operation-room nurse, all wore special clothing; but I will enter more fully into detail on this point later in connexion with the Johns Hopkins Hospital at Baltimore.

Ether was the invariable anæsthetic. It was administered on a simple stiff cone covered by a towel. At Boston it was given on a large, thick, cone-shaped sponge, without accessories of any sort, —a safe, efficacious, cleanly, and simple method. Chloroform is mostly regarded as unsafe, and ether is in general use.

The catgut for ligatures was prepared here in a simple way. It looked well, and was said to be satisfactory when tested clinically and bacteriologically. The gut, bought dry and unprepared, was first put into ether from 2 to 4 hours, depending upon its thickness, then into 1 to 1000 corrosive lotion for the same time, and from this into alcohol, where it was permanently kept till required for use. All instruments were sterilized before use in a special hot-air or steam sterilizer.

Hagedorn's needle and needle-holder were used for the introduction of sutures, and a needle-holder had two arguments in its favour —first, convenience; and, second, it was more readily and surely sterilized than fingers. A large number of sutures were used in wounds. Tier upon tier of catgut sutures held the deeper structures in apposition until the sides of the wound were so closely opposed that there was no space for and no need of drainage. Cheap sponges, made use of only once, were employed during operation. The dressings were guttapercha protective dipped in weak corrosive lotion, and torn into small patches, next the wound, and either sterilized gauze and wool, or corrosive gauze and wool heaped outside of this and retained by an ordinary roller bandage.

*Bellevue.*—Bellevue is an old-fashioned large hospital (800 beds), with a medical school in its grounds. There I saw a laparotomy performed by Dr Polk, gynæcologist to the hospital. The operating theatre is a very large one, much resembling the theatre of the old Edinburgh Infirmary in its arrangements and appearance. From 150 to 200 students were present, and waited comparatively quietly for Dr Polk and the patient.

On Dr Polk's arrival he was greeted with enthusiastic cheers, for he had just returned from a holiday in Europe. The patient was immediately wheeled in on a couch, under the influence of ether, and her case briefly discussed. She was then stripped and placed on a low, short operating table, only long enough to hold her body. The legs rested on a stool. The operator explained that he had brought her unprepared to show the methods adopted preliminary to operating, and an assistant proceeded to smear the abdomen with an alcoholic solution of soap, and with the vigorous use of a nail-brush and hot water soon produced an abundant lather. The pubis was now shaved with a razor and the lather washed off by pouring a hot solution of corrosive sublimate from a jug over the abdomen. Whilst the abdomen was being attended to by one assistant, a second was cleansing the vulval orifice and interior of the vagina by directing the flow of lotion over and into these parts by his hand and fingers. The cleansing process finished, the patient was entirely covered by antiseptic moist towels, excepting a portion of the abdominal wall of parallelogram shape, reaching from the umbilicus to the pubis. Dr Polk and his assistants, having thoroughly washed and disinfected, got into their respective places. The former seated himself at the lower end of the table, between the thighs of the patient, with a leg on either side of him, and his abdomen resting against the patient's perineum. This, he said, was Martin's (Berlin) position, and had many advantages. An assistant stood on each side of the patient ready to help the operator. A variety of matters were discussed and explained during the proceedings, and an occasional halt made when any particular point required emphasizing. The operator, taking a long-bladed bistoury, and commencing the incision just below the umbilicus, with one skilful sweep cut through all the structures at once, down to either fascia transversalis or peritoneum, for the next step was to seize the tissues at the bottom of the wound on either side with two pairs of artery forceps, between which a nick was made, opening the peritoneum. The finger was now introduced and the peritoneum slit up the length of the wound. The uterus and appendages were then drawn forward, the extent of disease, a double hydrosalpinx, ascertained, and the operation completed by the removal of the diseased appendages in the most approved fashion.

I have not yet shaken off a feeling of being in sacred ground when my hand is in the peritoneal cavity, and it was somewhat startling to me to see the unceremonious way in which this operation was performed at Bellevue. The impression conveyed to my mind was that the operation was as exciting to the operator as the operation of trimming the nails is to an ordinary mortal, who is occupied in conversation whilst doing it, and does not feel the least need of hurrying over the performance.

I have never seen an operation more skilfully performed; but the advantages of the position adopted would have to be very clear before a British surgeon could be persuaded to adopt it. It is not an elegant one.

*The New York City Hospital.*—This is a very handsome building, outside and in. It is built on the pavilion principle, and each individual ward is a model of what a perfect hospital ward should be. Unfortunately it has been built on a limited space, and is five stories high, with a very limited interval between each block. The consequence is that the natural lighting and ventilation of the lower wards especially is considerably interfered with.

Dr Weir, one of the surgeons to the hospital, kindly conducted me round, and I had the opportunity, after the visit, of seeing Dr L. A. Stimson excise the vermiform appendix for perforating ulcer and peritonitis. The patient was a young man of about 18, who, six months before, had an attack of perityphlitis, from which he recovered under medical treatment. He was now suffering from a relapse, with urgent symptoms, and though his abdomen was much swollen and tender, a large resisting mass could be felt in his right iliac fossa. An incision about six inches long was made in the right linea semilunaris, and a quantity of fœtid pus welled up as soon as the peritoneum was opened. On further opening the peritoneum it was seen that the pus was well localized and shut in by adherent coils of intestine, with the exception of a small place at the upper part, where a communication might possibly exist with the general peritoneal cavity. The pus was very carefully sponged out with small sponges in long forceps, wrung out of 1 to 1000 corrosive lotion, particular care being taken not to disturb any of the adhesions towards the cavity of the abdomen. The vermiform appendix was then seen projecting from the end of the cæcum into the cavity, like a thick reddened spur, and after tying and dividing its mesentery it was ligatured at its base and removed close to the cæcum. The exposed interior of the divided appendix was then touched with pure carbolic acid, and afterwards seared with the point of a thermo-cautery. When all blood and pus had been cleared away by sponging, the pus cavity was gently packed with strips of iodoform gauze all round the stump of the appendix. The wound was sutured and the ends of the gauze strips left projecting through a small gap, to be taken away later, when further adhesion had made it safe to do so.

To see this operation was a great treat. The consummate skill with which it was performed, the careful attention to every detail in the performance, and the scientific way in which possible accidents were provided for, ensured success, if success was possible.

The appendix was opened in my presence, and there was, near the end, an ulcer about the size of a threepenny bit, which had perforated near its centre at one very minute point.

During my visit I saw at least five cases in which the appendix had been removed for similar conditions. The only deduction I can make is that appendicitis is more common in America than in Europe.

When discussing the condition with Dr Hartley, surgeon to Bellevue Hospital, I mentioned that in three cases, at least, I had opened a perityphlitic abscess with good result, immediate and remote, so far as I knew. He said the appendix was always removed in America in such conditions when it was possible to find it, as, if it was not, relapse was not infrequent. In proof of his statement he showed me a boy whose appendix had been removed a few days before, and his history was that a few months ago an abscess had been opened after a severe illness, and healed; he got quite well, had a relapse, and had now been admitted a second time with recurrence of similar symptoms, and had his diseased appendix excised.

The *Johns Hopkins Hospital* at Baltimore, on its completion, will be the most perfect large hospital in the world. It will be double its present size, and will then have 400 beds. Possibly this statement may give the impression that it appears unfinished at present. This is not the case. Everything, so far as it goes, is complete, and everything that medical or surgical brain could wish for and think of is there. The appointments on the staff are the best in all America, for they secure to their fortunate possessors an income of £1000 a year, with no restrictions whatever. Could any conditions be better calculated to secure for the citizens of Baltimore the best medical services?

Dr Hurd, superintendent of the hospital, showed me round. He had the whole working of the hospital at his finger ends, and appeared to know all that was going on equally well in every department—medical, surgical, gynæcological, pathological, and bacteriological. He knew every instrument, recent and late, and could explain its advantages and disadvantages; every dressing, new and old, he had considered, and what things were necessary, good, and indifferent in the hospital he was clear in pointing out.

The out-patient department was the most perfect working arrangement I have seen. No time was lost, and with very little trouble a good record of each case was kept.

There is a good opportunity at Baltimore, as at Liverpool, of comparing the circular ward (or more correctly at Baltimore, octagonal) with pavilion wards, as each hospital has wards on both systems. I could get no expression of opinion at either Baltimore or Liverpool as to which was considered best, except that Dr Hurd told me that patients preferred the circular, as feeling more private, from the central pillar hiding one-third of the ward from the remaining two-thirds, and that nurses liked the ordinary ward best for the opposite reason—that they could see all that was going on in the ward from any one part of it.

My own feeling—after seeing Antwerp Circular Hospital, Johns Hopkins, and Liverpool—is in favour of the circular ward. After the first strange appearance has worn off, it is not difficult to see that on a limited ground space ventilation can be more efficiently secured, and aspect, of such prime importance in pavilion wards, where those with a northern frontage always appear colder and darker, may in the circular be almost neglected.

The private wards at Johns Hopkins Hospital are so well patronised that last year they produced an income of £8000 for the hospital.

Nearly all the public hospitals in America have private apartments attached for paying patients, who are taken in at fees ranging from £2 to £10 a week; and private hospitals are much more common than with us, as it is fully recognised that a patient's chance of recovery, especially in surgical cases, is much better in a properly equipped institution than at home.

The pathological and bacteriological laboratories form a part of the building; and though this arrangement was made temporarily, it has been found to work so satisfactorily that it is now agreed that they shall remain permanently.

After going round the hospital with Dr Hurd, I accompanied Dr Halsted through the surgical wards. There was a dearth of interesting cases, but what I did see was novel and good.

Dr Halsted has written on the "Treatment of Wounds, with especial reference to the value of Blood-Clot in the management of Dead Spaces," and showed me an interesting case bearing on this. A middle-aged man had necrosis of the lower end of the femur, for which he had already undergone three unsuccessful operations in good hospitals during an illness extending over twenty-five years. Dr Halsted dissected away all sinuses, and thoroughly scraped out a large cavity in the lower end of the femur. Taking the view that this large cavity could not heal, he cut down on the anterior part of the femur, and removed an elongated portion of the middle of the bone, opening up the cavity from the front. He transplanted into the hole a flap of the vastus internus muscle, and this, together with blood-clot, filled the cavity completely. An aseptic dressing completed the proceeding; and at my visit, a few weeks afterwards, the leg was healed without a trace of suppuration.

I saw also a novel method for the radical cure of hernia, which was said to be giving excellent results. Dr Halsted's operation is based on the opinion that the presence of the spermatic cord in the inguinal canal is an important factor in the causation of hernia, and the prevention of a radical cure. He consequently makes a new passage for the spermatic cord in the abdominal wall higher up than the internal ring. The incision begins at the anterior superior iliac spine, and ends internal to the inner pillar of the external abdominal ring; dividing, skin, external oblique aponeurosis, internal oblique, the part of transversalis muscle exposed, and transversalis fascia, the whole length of the skin incision. The spermatic cord is then separated to the upper level of the internal ring. The sac is isolated and drawn forward with the exposed peritoneum through the wound. The opposed peritoneal surfaces are then brought together along the line of incision by a series of quilted sutures, and the redundant peritoneum and sac clipped away close to the line of sutures. The cord is now brought through between the muscles near the upper end of the wound, and the divided muscles are brought into apposition by a second row of quilted sutures. The aponeurosis of the external oblique may be included in this or separately sutured. Finally, the skin wound is carefully sutured, leaving the spermatic cord between skin and aponeurosis. No drainage tube is required.

I next went to Dr Howard A. Kelly's Gynæcological Clinic, one of the most interesting medical sights in America. Dr Kelly is a young man, only thirty-five, and has attained his present position solely by his own work and ability, which count, I fancy, more in the New than in the Old country. His results in abdominal operations can scarcely be surpassed, and I was much impressed by the thoroughness of all his work. He has a special theatre and wards of his own, and has described those and his method of working, in full in the Johns Hopkins Hospital Reports for 1890. The combination of asepsis and antisepsis described is such as is employed at most of the surgical clinics with a strictness not frequently to be seen in this country, and I have purposely left distinct mention of this important subject till I could do it full justice.

The following extracts from Dr Kelly's report show where and how his surgical work is carried on:—"The gynæcological operating-room of the Johns Hopkins Hospital is in a separate building, in the centre of the private gynæcological ward. Clustered around it are thirteen private bedrooms for patients. Bathroom, water-closets, and sink are all located in the remote part of the wing, projecting from the main building. The operating-room faces the west, and is lighted by three long windows. Its floor is 16 by 20 feet, and the height of the walls 14 feet. The walls have a hard soap-stone finish, allowing the free use of water in cleansing, and by their light colour diffusing the sunlight which enters the three western windows. All angles and corners in the whole building are rounded off, preventing accumulation of dirt, and greatly facilitating the cleansing. The floor is laid with a light-coloured, hard, encaustic German tile, closely fitted, absolutely impervious to water and blood. It slopes to the discharge-pipe beneath the wash-basin, which carries off the water used in mopping after operations. The hot and cold water used for the preliminary washing of hands and instruments is supplied by five pairs of faucets—four over four porcelain hand-basins set in a marble slab, and two large faucets over a porcelain-lined sink, 24 by 48 inches, used for washing instruments and glassware. All pipes are open to view. There are no concealed nooks or corners in any part of the room. There is absolutely no 'dead space.' All of the water is either distilled or filtered. The tap-water has already been filtered in the boiler vault by a Loomis's filter, and yields from the cold faucet but 5–6 colonies of non-pathogenic bacteria to the cubic centimetre, in place of 35 in the non-filtered water. The hot water thus tapped is sterile (Dr Abbott's report).

"*Treatment of Instruments.*—Instruments are immersed in distilled water during an operation, and are never allowed to become dry afterwards until thoroughly cleaned. After an operation they are at once washed with hot water and brown soap from two to three times, and then dried very carefully and put away in the case. Immediately before using the instruments at an operation, they are sterilized by steam in a newly-devised Rohrbech oven at 100° C. (212° F.) for a half-hour, when by turning a ventilator the steam is shut off, and they are automatically dried before being removed from the oven. From the oven they are at once transferred to the glass trays and basins, in which they lie throughout the operation, immersed in hot distilled water.

"*The Patient.*—The patient is prepared for an abdominal operation by daily baths for three or four days, or a longer period if the opportunity is afforded, and the condition of the skin requires it; in the bath the nurse carefully scrubs the skin of the abdomen, thoroughly cleaning out the umbilicus. In addition to this the patient receives twice daily a vaginal douche of 1–3000 bichloride of mercury, or a 3 per cent. solution of carbolic acid. For abdominal hysterectomy the technique of vaginal cleanliness, in washing out with soap and water and douching frequently, is more aggressive and thorough. The bowels are always freely opened, and the diet limited to soft, easily-digested food for from three days to a week beforehand. An hour before the operation she receives one-fourth of a grain of morphia and 30 grs. of bismuth. When lifted on to the operating-table, the abdomen is again thoroughly cleansed with soap and hot water, and the genital hairs shaved off. This is followed by a douching with bichloride (1–1000), and again with water to remove the bichloride. The field is then aseptic and ready for operation.

"The *gauze, towels, sponges, and ligatures* used in all operations are disinfected as follows:—The gauze is common cheese cloth, a yard wide, costing 5 cents. per yard. It is first cut in lengths of 3 yards, then boiled in a solution of washing soda, 2 drachms to the gallon, for twenty minutes; after this it is thoroughly cleansed by washing in four distinct hot distilled waters. Then it is wrung out and laid in a bichloride of mercury solution (1–500) for one hour, and after this transferred to alcohol, or to a 3 per cent. carbolic solution for preservation. Just before use it is lifted out of a large salt-mouth jar, and wrung out and laid in distilled water. The towels are soaked for twenty-four hours in 1–1000 bichloride solution, and then wrung out and put in a large jar of 3 per cent. carbolic solution. The sponges are bought by the pound, costing from 1 to 2 cents a-piece. They are brown and gritty in the package, requiring much careful handling to render them safe for use. They are first laid in a dry cloth, and pounded lightly to break up and loosen and remove the coarser grit. They are next immersed in a solution of hydrochloric acid (commercial), one drachm to one pint, and left twenty-four hours. They are taken from this and washed in from twelve to sixteen hot waters, until they no longer give the water a yellowish colour; they are carefully handled all this time to separate all lumps and spiculæ which can be detected by eyes or fingers. They are next transferred to a 1–1000 bichloride solution for twelve hours, and from this transferred to a 3 per cent. watery solution of carbolic acid for preservation.

"The *Ligatures and Sutures* are of twisted surgeon's silk, bought in skeins, sizes 1–4. They are freshly prepared every week. The skeins are opened and laid in boiling water for twenty minutes. They are next immersed in a 1–3000 bichloride solution for three hours, and transferred to alcohol for preservation on long spools. Just before the operation the cover of the dish is removed and the necessary amount of ligature pulled out and cut off. Any ligatures left over after a laparotomy are transferred to another glass dish, and used for perineal and vaginal operations.

"*Catgut* is bought raw from the instrument maker, and prepared as follows:—It is first immersed in a watery bichloride solution (1–1000) for twenty minutes, and then transferred to absolute alcohol for one hour. It is then laid in oil of juniper wood for forty-eight hours, and transferred back to alcohol for preservation. I do not feel safe in using strands of catgut of more than 1 mm. in thickness.

"*Silk-worm gut* is bought in bunches, the curly ends are cut off, and the straight pieces laid in absolute alcohol for preservation.

"*Operator and Assistants.*—The toilet of all persons in the room is one of the most important features. Visitors are required to put on large linen wrappers completely covering their street clothes. Nurses wear clean washed dresses on their costumes. Operator and assistants remove coat, vest, starched shirt, trousers, and shoes, donning a freshly washed, white, linen suit, with short sleeves, and white canvas shoes with rubber soles. They are thus dressed in clean white clothing from head to feet. Before touching instruments, ligatures, etc., the operator and his assistants, upon entering the room in their white suits, turn to the wash-basins, and there spend *at least* ten minutes washing hands, finger nails, and forearms with brown (oleine) soap and warm water and a moderately stiff scrubbing brush. The thorough use of a good brush on short nails will do all that is necessary. After washing thoroughly in soap and water, the hands are next immersed in a saturated solution of permanganate of potash, and held there until they are uniformly deeply stained, from which they are transferred to a saturated solution of oxalic acid, which removes the stain in one minute. They are then dipped in plain water, and finally laid in a bath of perchloride of mercury (1–1000) for a measured minute. The hands and arms are thus rendered clean and aseptic. It will often happer that it is necessary after this preparation to touch parts of the patient which are not aseptic, as in arranging her conveniently on the table, or various articles not assuredly aseptic may be handled by accident or otherwise. After such contamination, a brief, but careful scrubbing with the soap and water, followed by a brief plunge into the bichloride solution, will render the hands once more aseptic. *I attach the utmost importance to the thoroughness of the first washing;* if this is efficient, the dirt of twenty-four hours is removed, and any subsequent superficial contamination may readily be removed with less pains.

"*The Operation.*—With such preliminary antiseptic preparations, the operation is begun under aseptic conditions. *Throughout the operation no antiseptic solutions are used.* If the intestines need washing or the abdomen douching out, distilled water at 110° F. is used. For sponges, instruments, ligatures, or cleansing the hands from time to time, nothing but boiled distilled water is used.

"*The Field of Operation* is next shut off from the rest of the body, the table, etc., in the following manner. The patient lies on the operating table, which is as long as the body from the head to the knees, and the feet rest on a step 18 inches below the level of the table. The hips lie within the ovariotomy pad. The night-gown is pulled up over the chest. After the preliminary shaving and disinfection, one of the prepared towels is laid across the upper part of the thighs, over a piece of rubber sheeting covering the legs. Another prepared towel is laid across the upper part of the abdomen and lower thorax. Over both of these towels and the bare abdomen between them, a piece of prepared gauze is laid, 26 inches long, 22 inches broad. The gauze is slit over the linea alba from the umbilicus to pubes, the slit pulled open, and through this opening thus guarded on all sides the abdominal operation is performed. *It is the constant duty of the operator to have a lively consciousness of what the assistants are doing with their hands*, and in case of any transgression on their part to send them to the wash basin.

"*The Dressings.*—The dressings for the wound in abdominal surgery are as simple as possible. If a drainage tube is used, a loose plug of the sterilized gauze is dropped to the bottom, to act as a capillary drain.

"The wound is thickly covered with a dry powder of iodoform and boracic acid (1–7) well mixed, and this is not disturbed until the stitches are removed from the abdominal wall on the eighth day. A thin layer of bichloride cotton is laid directly on the wound, covered with powder, and over this a wide roll of plain absorbent cotton 1½ inches thick. The whole dressing is held in place by an imbricated many-tailed flannel or muslin bandage. If the bandage is removed at any time during the first week, fresh powder is sprinkled over the line of incision.

"The nurse catheterizes the patient only if she is unable to pass her own urine, first wiping off secretions from the mouth of the urethra, and then sprinkling some of the iodoform and boracic acid powder within the vulvar orifice after each catheterization."

Such are Dr Kelly's directions, and they give me the impression of carrying out surgical principles, according to our present lights, in a practical manner, and one approaching perfection. American surgeons do not forget that all recent advances in wound treatment originated with Sir Joseph Lister, and admit without hesitation that his researches have revolutionized surgery.

They claim that their hospitals and nurses are better than ours, and the first I cannot deny. The American nurse, though, is a copy—in costume, manners, everything—of the Nightingale sister, but to my mind there is no nurse so perfect as a good English one.

Before leaving the subject of the Johns Hopkins Hospital, it will be well to mention that it has *the* reputation in America as a training school for nurses, efforts being made by means of lectures to give them a sufficient amount of information. The Syllabus of Lectures includes—Elementary Anatomy and Physiology; Hygiene, with special reference to ventilation, heating, and drainage; Bacteriology, especially in its application to Surgery and Medical Practice; all the Surgery required to ensure a certain amount of appreciation of what is being done, and enough of Medicine to make the reasons for certain lines of treatment intelligible. A satisfactory examination must be passed on the subjects included in the lectures and on cookery—theoretical and practical—before a certificate of efficiency is given.

Is this too much, or are we doing too little for our nurses? I think the fault is on our side. The nurses are interested in such work for its own sake, and the smattering of knowledge so gained helps them to take a more intelligent interest in surgical methods, and naturally increases their efficiency.

The *City Hospital at Cincinatti* is an old building, but does a great deal of good and useful work. I spent a pleasant and profitable morning with Dr Conner, surgeon to the hospital, who showed me several simple fractures put up in plaster-of-Paris bandages. Here, as in most American hospitals, it is the rule to put the limb up at once in a plaster bandage over a thick layer of cotton wool. About the end of the first week, all being well, the bandage is taken off, the position of the limb examined, and another bandage firmly applied. This is left on for the remaining five or six weeks of treatment. This practice also obtains in all the German hospitals I have visited, but is adopted only partially in the British Islands. Dr Conner told me there was now a rage on the radical cure of hernia by different methods, but that he thought possibly ligature of the neck of the sac and its removal were sufficient and as satisfactory in result as more elaborate proceedings.

He also took me to a large Catholic Hospital in Cincinatti, with over 200 beds. It is managed by Sisters of Mercy, and there is no resident surgeon. The wards are small,—in fact it is a large ordinary house, the private rooms of which have been converted into small wards. It is remarkably clean and comfortable, and has an air of homeliness about it which is wanting in the ordinary hospital ward. Is this not the model hospital of the future?

In *Chicago* I saw Dr Senn, who has recently removed there from Milwaukee. I had no opportunity of seeing him operate, but learned from him in conversation that he had given up the use of dry decalcified bone plates, as originally recommended by him, for, in one case of gastro-enterostomy the patient vomited the plates, and in a second case the plates had escaped from the abdominal wound. Both patients recovered, but in spite of this he now prefers plates kept in a mixture of equal parts of spirit, glycerine, and water.

The *Massachusetts General Hospital*, Boston.—Owing to the kindness of an old Vienna friend, Dr Williams, physician to the City Hospital, I spent a most pleasant and profitable morning with the staff, to whom he gave me an introduction. Everything, including hospital, staff, nurses, and all else, is decidedly English at Boston. It seemed none the worse for that.

I first saw Dr Cabot, surgeon to the hospital, do an ovariotomy. The operation was performed in a special theatre, as all laparotomies are at this hospital, which was quite isolated from the main building, and had special wards in connexion with it, much the same as at Johns Hopkins Hospital.

Worsted quilted in gauze bags took part of the share in the sponging, though sponges were used too. The case I saw operated on was a tumour of large size, and several vascular adhesions were torn through, so that some blood necessarily got into the abdomen. The majority of surgeons in this country would have washed out that abdomen and drained it. Dr Cabot did neither.

He, however, sponged it dry and clean before suturing. So far as I could judge a reaction has commenced in America against drainage and washing in abdominal surgery, as I, several times, heard both condemned as mischievous.

Dr Cabot also showed me two hysterectomies for fibroid, clamped outside, convalescent, and a bad case of double pyosalpinx doing well after operation. The results of abdominal surgery in the hospital are excellent, as one can well believe, after seeing the care taken of the patients, and the strict attention to every detail enforced. In this hospital and at the City Hospital the general surgeons do all the operative gynæcology, and all over America the general surgeon does a great deal, possibly the greater part of this work. It is settled on the other side of the Atlantic that abdominal surgery, at all events, is a branch of surgery, not of gynæcology.

A case of excision of the ankle of Dr Cabot's interested me. We would call it erasion or arthrectomy, for the old formal excision is not what was performed. The ankle joint was opened by a semilunar incision on each side, curving round either malleolus and missing all tendons, vessels, and nerves. The astragalus was found diseased, and excised; for, as Dr Cabot explained to his class, if any disease at all exists in the astragalus the whole bone must be removed, its defective vascular supply making repair difficult. The os calcis was extensively diseased, but the tubercular foci were scraped and gouged out of it with good hopes of success, for its vascular supply is so good as to favour healing. The malleoli were left intact, and it was considered fortunate that this could be allowed, as they form an important buttress and support to the foot. Some loosened cartilage was scraped from the ends of the tibia and fibula, and all granulating tissue and infiltrated structure removed. The wound was then filled loosely with iodoform gauze, and dressed in the ordinary way. Excision of joints is somewhat of a speciality at Boston. Dr Scudder has published some excellent results, but all over America this is a common operation, and leaves an excellent and serviceable foot. Sixteen years ago my brilliant and revered teacher, Dr Heron Watson, frequently excised the astragalus in such cases; since then I had not seen it done, or heard of it again, till now.

In such a case nine out of ten surgeons in this country would have done Syme's amputation, and I ventured to say so in the operating theatre. Imagine my surprise at being told that if amputation had been necessary, Syme's would not have been the operation selected; that Syme's was perhaps the best operation for a wretchedly poor person; but there were few such, who could not afford a proper artificial limb; and that where money could be obtained for an artificial substitute, amputation at the lower one-third of the leg was the operation of election. This was said by one of the distinguished surgeons of the hospital, and all my remarks, even quotations from Mr Cathcart, failed to make any impression on his opinion.

Bigelow was a great benefactor to the hospital, and his name appears more than once in going round it. An operating chair in the theatre, devised by him, is a marvel of complicated ingenuity.

Attached to the operating theatre is a room for examining pathological specimens, with a pathologist in attendance. Within five minutes from the time a tumour is removed a stained section of it is mounted ready for examination. A fresh piece of the tumour is frozen by means of carbonic acid, an easier and cheaper method than ether, cut, and stained in methyl green, and, if wanted as a permanent specimen, mounted in glycerine.

Dr Mixter has invented an ingenious tumour punch, which is in general use in the hospital. It is a canula with sharp internal edges, which in doubtful cases he inserts into the tumour, painlessly under cocaine, and removes a portion of it for examination.

I will conclude this desultory paper with my general impressions.

American much more resembles German than English surgery. The Germans have an indescribable way of taking possession of an anæsthetized patient, giving an impression that he is entirely their own, and that they mean to do just what they like with him.

German instruments are large, artery forceps like tongs, scissors like sheep shears, retractors like garden rakes.

The German surgeon is seldom in doubt, and has an excellent embryological, bacteriological, and pathological explanation of all his cases and results. If there is any mistake, something is to blame, not the surgeon.

Then there are other German specialities, such as metal-handed knives, the invariable introduction of needles by a holder, the wearing of special operating apparel, the strict attention to asepsis and antisepsis, and the selection of only such operations as can be performed with deliberation and in open daylight. All have more or less influenced American surgery.

Results are, after all, the test, and on these a judgment must be formed, and from this standpoint my belief is, that if English surgeons do not wish to be overtaken, they must put their best foot foremost.

## IV.—STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY.

### I. The Investigation of Fœtal Disease.

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The study of the pathology of the fœtus has an importance which has not always been fully recognised. Partly on this account, and partly by reason of the innate difficulties of the study, the subject has been allowed to lag somewhat in the rear of the more rapidly advancing branches of medical practice; it has not progressed *pari passu* with the pathology of the adult organism, it has not even kept pace with comparative morbid anatomy. The above statements might with equal justice be applied to the study of certain of the diseases of the new-born infant, maladies which it is often impossible to disassociate from those occurring during intra-uterine life. The close connexion which exists between the pathology of the fœtus and that of the new-born infant forbids the rigid separation of the two subjects, and in the following studies in fœtal pathology frequent reference must of necessity be made to the diseased conditions of the new-born. It would even seem, in some cases, that morbid conditions may exist in the fœtus without apparently influencing intra-uterine health and development; as soon, however, as the infant is born, such conditions may become active, pathological factors leading to disease, and in some cases to certain death. The potential morbidity which existed in the fœtus has become real in the new-born infant. It would seem, for example, that the fœtus may not only exist, but develop fully without the common bile-duct; but the birth of such an infant is followed sooner or later by the jaundice of the new-born (icterus neonatorum) and by death. In a still more evident manner many other fœtal anomalies and malformations only become active pathological factors in the infant after it has left the uterus of the mother. It is impossible, therefore, entirely to divorce the study of fœtal maladies from that of the diseases of the new-born infant; the one subject serves to elucidate the other.

I. It is perhaps unnecessary to bring forward evidence in support of the statement that fœtal pathology is a subject concerning which there is a real absence of knowledge and a real need for thorough research; but it may not be without service here to mention some of the ways in which this want of a rational system of fœtal diseases has made itself felt.

The *nomenclature* of fœtal maladies, and also in many cases of those of the new-born infant, is in itself evidence of the delayed progress of this subject of medical study, and of the necessity for scientific investigation in this field of research. With few exceptions, the terminology is one based upon symptoms and not upon the pathological conditions which produce these symptoms—it is a symptomatological nomenclature. We use, in speaking of the diseases of the fœtus and new-born infant, expressions such as general dropsy, anasarca, jaundice, melæna, œdema, and apnœa—terms which we should hesitate to employ when naming the maladies of later life. In some cases even the symptomatological nomenclature is absent, and the disease is named after the first writer who described it fully, and thus it comes that such expressions as Winckel's Disease and Buhl's Disease are in common use. A terminology founded upon a symptom or upon the name of an observer is not evidence of advanced knowledge in any branch of medicine. It is not so long since another subject of medical study, gynæcology, was in a very similar condition; but no one, now-a-days, feels that his diagnosis of a gynæcological malady is complete or satisfactory when it is expressed in such terms as menorrhagia, leucorrhœa, or pelvic pain or swelling. Everyone knows that by menorrhagia is understood a symptom common to several maladies differing much from one another in their pathology, in their danger to life, and in the treatment they require, and we ought to be able to regard such conditions as dropsy of the fœtus and jaundice of the new-born in a similar manner. But at the present time it must be admitted that it is nearly, if not quite, impossible to differentiate between fœtal dropsy due to anomalies of the blood or lymphatic system and that produced by cardiac or renal disease; neither is it easy in the case of an infant to distinguish between a jaundice due to transient gastric or duodenal catarrh, and one caused by grave structural defects in the common bile-ducts. It is not even in our power sometimes to state whether or not the jaundice in a given case may be simply the physiological expression of the circulatory alterations in the liver incident to the establishment of the pulmonary respiration at the time of birth. Diagnosis is commonly delayed till the case has terminated either in recovery or in death; and there is, therefore, no possibility of any certainty in prognosis in such cases. If the jaundice be slight and evanescent, it is termed *physiological;* if it be more persistent, but eventually disappear, it is designated *catarrhal;* whilst if it result in the death of the infant it is regarded as *pernicious* icterus neonatorum, and its morbid anatomy is made manifest by a post-mortem examination. The discovery of a sign or signs, which could be relied upon for the differentiation of the various maladies of the fœtus which have œdema as a common symptom, and of the several diseases of the new-born infant which have their symptomatic expression in jaundice, would immensely help the pathologist and the physician in the diagnosis, prognosis, and treatment of such conditions. With regard to jaundice of the new-born infant, it is surely not too much to expect that such a sign as that indicated may ultimately be found in the blood or in the urine of the patient. The remarks which have been made with regard to œdema of the fœtus and icterus neonatorum may be extended to many other so-called fœtal and infantile maladies. Melæna, for example, is in all probability only a symptom of several widely different pathological states, and apnœa or asphyxia is no doubt simply the outward expression of various morbid conditions.

All fœtal diseases have not, however, a symptomatological nomenclature; fœtal syphilis is a clear and distinct pathological entity which has had its etiology, morbid anatomy, and treatment fully investigated. Similar remarks apply to these other diseases, which are, like syphilis, transmitted from the mother to the fœtus in utero, and of which a good example is found in small-pox. Then again that large subdivision of the subject of fœtal pathology which is concerned with the description of congenital anomalies and monstrosities is gradually gaining a nomenclature which is no longer founded solely upon out-standing signs and symptoms which may be common to many widely separated pathological states. Whilst, however, a terminology founded upon symptoms alone shows that the subject to which it applies is yet in its infancy, a nomenclature based upon an imperfect or erroneous etiology and pathology is equally indicative of immaturity. Several instances of this are to be found amongst fœtal and infantile diseases,—for example, the condition which has been called fœtal rickets probably includes states which are not truly rachitic, and for which it would be better to adopt the term achondroplasia as proposed by Parrot. This line of thought might be pursued further; but enough has been said to show that in the nomenclature of fœtal maladies is to be found a proof of the chaotic state of our knowledge of intra-uterine pathology.

The high rate of fœtal and infantile *mortality* affords a second proof of retarded progress in the acquirement of accurate knowledge concerning the diseases of intra-uterine life. Whilst during the last fifty years the expectation of life has greatly increased for the adult man or woman, there has not been a similar improvement in the mortality tables of the first months and years of life. It is impossible to say exactly what is the fœtal death-rate, for accurate statistics are wanting; but it must be very high, for the frequency with which abortion occurs is well known. Indeed, it would seem that there are few women who complete their child-bearing life without having on one or more occasions had a miscarriage. Some idea of the intra-uterine death-rate may be formed from the tables furnished by Whitehead and by Priestley. Whitehead, who drew his results from a study of the poorer classes, found that of women under the age of 30 years, 37·35 per cent. had aborted, and that the ratio of abortions to pregnancies was approximately as 1 in 7; whilst Priestley, who investigated the miscarriage rate in the well-to-do ranks of life, discovered that of women over 40 years of age, 62 per cent. had aborted, and that the ratio of abortions to pregnancies was about 1 in 4⅓. Abortions are not, it is true, always due to fœtal disease or death; but in many cases they are so caused, and statistics founded on the miscarriage rate give at any rate some idea of the large amount of intra-uterine morbidity which occurs in all classes of the community. Further, to these figures must be added those which indicate the number of still-births, many of which are due not to accidents during labour only, but also to fœtal disease occurring in the later months of pregnancy. Then again, the deaths which occur during the first year of life are in many cases due to congenital disease, deformity, and weakness; and with regard to them, more accurate statistics are forthcoming in the Registrar-General's returns. In the first quarter of the present year (1891), out of every 1000 infants born in the twenty-eight large towns of England, 149 died before attaining the end of the first year of life: this rate almost exactly corresponded with that in the first quarters of the preceding ten years, a fact which demonstrated that there had been no improvement in the expectation of life for infants during the decade. Whilst this was the infantile death-rate in England, it was exceeded in many other European countries, in some of which it reached the appalling rate of 300 or even of 400 per 1000. Further, a glance at the reports of medical officers of health all over the country serves to show that a high infantile mortality is their most striking feature. I quote at random from several of these reports: In one it is stated that "about one-third of the total deaths were in children under one year of age;" in another, "the most unsatisfactory item is the large proportion of deaths of infants;" in yet another, "the chief points are the low rate of zymotic mortality and the comparatively high rate of infant mortality."

Many of the deaths which occur during the first year of life must, of course, be ascribed to causes other than fœtal morbid states; but few will be prepared to assert that many of them are not directly due to conditions the result of intra-uterine disease or mal-nutrition. It may also be urged that a high fœtal and infantile death-rate is not an absolute proof of a want of knowledge of fœtal pathology and etiology, for the reason that a great part of the mortality is immediately due to neglect and ignorance on the part of parents. But whilst parental carelessness is truly responsible for many deaths amongst infants, and whilst maternal ignorance is the cause of many miscarriages, yet there is, underlying this carelessness and ignorance in the laity, a real absence of knowledge in the medical profession. The practice of the people always reflects more or less accurately the teaching of the profession. It was not till medical men fully grasped the dangers and defects of our sanitary appliances and devised means to protect the people from them, that the preventable mortality of adult life began to diminish with most gratifying rapidity. Popular practice soon adopted the enlightened views of the profession. It is surely not altogether Utopian to look forward to a time when, with a fuller knowledge of the nature and causation of fœtal maladies, there will come a satisfactory diminution in the number of cases of intra-uterine death and disease. Did we, for instance, know the etiology of congenital malformations, we might be able to devise prophylactic measures, and so save many lives and prevent an increase in the number of comparatively helpless or hopelessly maimed human beings existing in the world. In the case of several fœtal diseases, it has already been demonstrated that this is possible. Intra-uterine syphilis is a case in point. The physician who has diagnosed the existence of syphilis in a married couple is able to assure them that if they will but adopt certain prophylactic measures, if they will put themselves under a rigid anti-syphilitic treatment with mercury, they will sooner or later be rewarded by the birth of a healthy infant. Even if there exist a fœtus in utero presumably already affected with the syphilitic taint, it has been shown that the administration of mercury to the mother, and through her to the unborn infant, will have a beneficial effect upon the fœtus, and may ward off a miscarriage, although it may not suffice to lead to the production of a living infant. Again, in certain cases, it has been shown that the administration of chlorate of potash to the mother during her pregnancy may be of such service as to enable her to give birth to a living healthy infant, although all her former gestations had terminated with distressing regularity in miscarriages. The protection of pregnant women from sources of infection during epidemics is another means which may, in many cases, result in the prevention of fœtal disease and the saving of fœtal life. Such are some of the measures which a study of fœtal disease has already placed in our hands wherewith to combat intra-uterine maladies; and in many other directions we may look for further advances in treatment the direct results of discoveries in etiology. Thus the elucidation of the laws which govern the hereditary transmission of disease, and of those which lead to the production of anomalous, deformed, or monstrous fœtuses, would undoubtedly yield results fruitful in suggestions for therapeutic measures, both prophylactic and curative. A certain amount of advance has already been made along the lines above indicated, and there are hopeful indications that we may ere long be able successfully to cope with many fœtal pathological states at present beyond our reach.

The symptomatological character of the nomenclature of fœtal disease, and the high rate of mortality during and immediately after intra-uterine life, have been adduced as evidence of the imperfect nature of the prevailing ideas upon fœtal pathology; but a third and very evident proof is to be found in the scanty and uncertain information concerning the diseases of the fœtus which is to be found in medical text-books and in the lectures of medical teachers. Whilst there are certain notable exceptions to this statement, the general rule holds good, that fœtal pathology holds but a small place in the curriculum of medical study, with the inevitable result that the hard-worked general practitioner, who has already great difficulty in keeping pace with the new discoveries in medical and surgical treatment, is compelled to abandon as hopeless the attempt to understand the diseases of the fœtus, and even, to some extent, those of the young infant. The silence of the profession upon such matters has indirectly tended to foster ignorance and superstition among the laity; and I take it that the existence of so many erroneous popular beliefs concerning infantile health is a grievous blot upon the civilisation of the century now drawing so nearly to a close. Enormous strides have been made in the popularisation of the laws which govern health in the adult, and a more correct conception of the factors which govern the well-being of the child has been disseminated far and wide, but there yet remain the most erroneous notions with regard to the value of fœtal life and the nature of fœtal diseases and deformities.

II. A few words may now be said with regard to the causes which have retarded the progress of fœtal pathology and therapeutics.

There are, first, the *innate difficulties* of the subject. The diseases of the fœtus are, during their evolution, hidden from the eye, and the observer is left to judge of their characters from the appearances visible when the infant is born. It goes without saying, that such appearances may differ very markedly from those which existed during intra-uterine life; and if the disease have led to fœtal death, there will be superadded the post-mortem changes of maceration or mummification. It becomes, therefore, almost impossible to obtain a complete clinical picture of any one of the diseases or deformities which affect the fœtus; all that can be hoped for are glimpses of the condition in different cases and at different stages in its development, depending upon the progress the disease has made at the time when abortion or labour occurs. It is true that vague indications of the state of health of the fœtus may be obtained from the feelings of the pregnant woman, and from the examination of her uterus, abdomen, and mammæ. Irregularities in the rate of growth of the uterine tumour and quickening or slowing of the fœtal heart-sounds may indicate disease of the uterine contents; and cessation of the fœtal movements, along with retrogressive changes in the mammæ, and perhaps maternal peptonuria, may denote the death of the infant in utero; but these aids to diagnosis are neither very constant nor very conclusive, and they do not afford much information regarding the nature of the fœtal malady or the cause of the cessation of vitality.

The situation which the fœtus occupies in the body of the mother, whilst it renders difficult any inquiry into intra-uterine diseases, is at the same time the cause of that immunity from several pathological conditions which the fœtus enjoys. It is immediately surrounded by the liquor amnii, which, serving as a natural water-cushion, protects it from sudden shocks and jars; the uterine walls, by their growth and distensibility, allow increase in size and freedom of movement to the fœtus, whilst they shield it from harm, and maintain by their vascularity that constant temperature so needful for healthy development; and, external to the uterus, are the partly osseous, partly muscular, abdominal and pelvic walls, which serve still further to secure the safety of the embryo in utero. The intra-uterine position of the fœtus, therefore, whilst it interferes with ease of diagnosis, diminishes the risks of injury, and limits the number of diseases to which the unborn infant is liable.

Another circumstance which has interfered with the development of a system of fœtal pathology is found in the fact that until comparatively recent times *embryology and fœtal physiology have been but imperfectly understood.* Now, a knowledge of these subjects must of necessity precede any attempt to master the intricate problems of fœtal pathology. That large subdivision of intra-uterine pathology, known as teratology, made little or no progress until the microscope made possible the investigation of the development of the early embryo; and in a similar manner it was not till clear conceptions concerning fœtal nutrition, circulation, and innervation were gained that it became possible to understand many of the diseases of the fœtus. It may be confidently predicted that each advance in the study of embryology and of fœtal physiology will add to the clearness of the existing views upon fœtal disease. Reciprocally the study of intra-uterine disease will throw fresh light upon the development and the functions of the embryo. It has indeed already done so. Every fœtal disease or anomaly is an instance of a natural pathological experiment, from which much may be learnt by the attentive observer. Many hints have, for instance, been gathered from the study of anencephalic and acardiac fœtuses, which have aided the physiologist in his inquiry into the functions of the nervous and circulatory systems in the embryo; and the observation of double-monsters has been fruitful in suggestions concerning early embryological conditions. But, whilst this is so, still the correct understanding of fœtal morbid states depends upon, and has been hindered by, the rate of progress in the allied subjects of embryology and biology. Rational physiological views must precede a complete system of pathology in the fœtus as well as in the adult.

A third cause of delay in the acquisition of knowledge concerning fœtal disease is to be sought for in a totally different direction. The tendency of the observer has ever been to neglect matters of *apparently minor interest* for those of major importance. *De minimis non curat lex* is a maxim which has been adopted in medicine as well as in law. The study of the diseases which affect the fœtus has been thrust into the background by the investigation of the maladies of the head of the house, of the mother of the family, and of the older children. The mercantile value, if we may so express it, of fœtal life has been put at a very low estimate compared with that of the health of the bread-winner or the mother. This was to a large extent inevitable, but it has now come to be realized that fœtal maladies have a far-reaching influence upon the health not only of the infant, but also of the mother, and are in every respect worthy of the closest study. Even at the present time, however, it is more than probable that many cases of fœtal disease pass unnoticed, and many go unrecorded simply *because they are fœtal.* There seems to be a somewhat widespread opinion still in existence that observations upon fœtal diseased states, however interesting from a theoretical point of view, are not likely to yield much information of a practically applicable kind. There can be no doubt that this method of regarding the subject of intra-uterine disease has been a potent factor in retarding progress and in delaying the establishment of a complete system of fœtal pathology and therapeutics.

III. From what has been stated, an idea will have been formed of the present state of the study of fœtal pathology and teratology, and of the lines along which the future progress of this subject may be expected to advance. Some of the methods and means by which intra-uterine disease should be investigated may now be detailed.

In the *first place,* specimens illustrating fœtal disease or malformation ought to be looked for, and, when found, ought to be thoroughly dissected. The post-mortem examination of fœtuses, of still-born infants, and of new-born infants who succumb within the first weeks of life, is a means of observation to which the attention of the medical profession has not yet been sufficiently directed. The well-marked forms of fœtal monstrosity, such as the exomphalic, the anencephalic, or the cyclopean anomaly, are not likely to escape the notice of the medical man; but it is not an uncommon thing to find that no dissection has ever been made of these interesting abnormalities. They have been bottled and catalogued and placed upon the shelves of some museum, private or public. Sometimes this even has not been done, and they have either been destroyed or kept in the medical man's own possession for the benefit of his professional friends alone. It may, however, be urged that the dissection of an anomalous fœtus destroys its external appearances, which are of great interest. Now, the external appearances are no doubt of great importance, but they can be preserved without sacrificing the valuable information which a dissection of the fœtus might give. In all cases one or two water-colour sketches or photogravures will preserve the external characters as well as, if not better, than the keeping of the specimen in spirit, which changes the colour, and in some cases the form also, of it. But more than this can in many cases be accomplished, for sometimes it is possible to dissect the infant and also retain the outward appearance. Some years ago, in the case of a peromelous fœtus, I removed the skin, stitched it together, and stuffed it with horse hair and cotton wool, and now the specimen, *minus* skeleton and viscera, shows almost, if not quite as well as before, the general appearance of this rare monstrosity, whilst the organs and bones have been available for dissection. This stuffed specimen is now in the Obstetrical Museum of Prof. A. R. Simpson, to whom I am indebted for the suggestion of the method above described.

It is certainly wise to dissect all the cases of well-marked congenital malformation which occur, but it is also almost equally important to make post-mortem examinations of all dead or still-born infants and fœtuses whether these show any external abnormal or diseased conditions or not. This means of increasing our knowledge of fœtal pathology has been too much neglected. When carried out it has never failed to yield important information. Many teratological conditions, such as the anomalies in the form of the viscera, and the curious cases of transposition or situs inversus are not evident on inspection, and many of the diseases of the fœtus require a full dissection in order to make clear their pathological nature. The routine practice of making an autopsy upon every dead fœtus or infant could be carried out without much difficulty, save in the cases where objection was made by the parents, and in this way many anomalies might be discovered, and many obscure cases of fœtal disease might be cleared up. Especially is this true of infants who have died at or soon after birth. To quote only a few out of many examples, I may instance a case of heart disease, which proved fatal a few days after birth, another of rupture of the spleen, several of intra-cranial hæmorrhage, and two of peritonitis. In all these cases it was only by dissection that I was able to ascertain the cause of death. A word or two may not be out of place with regard to another method of investigation which may in conjunction with dissection yield good results in the study of fœtal disease and infantile death. The frozen sectional process is the method now alluded to. I have by this means investigated the relation of parts in the anencephalic fœtus, and in that with general dropsy. In the latter case the method was of special value, for it demonstrated the position of the fluid in a way that no other means could have done so efficiently. The extension of this mode of study to other forms of anomalous and diseased fœtuses could not fail to yield useful information. In the exomphalic fœtus, for instance, the relations of the viscera outside the abdomen to those inside might thus be ascertained more definitely than by simple dissection. The microscopic investigation of the tissues of the malformed or diseased fœtuses is a means of study, the importance of which is so fully recognised that I need do no more than mention it here.

A *second* line of research in connexion with fœtal pathology is to be found in the inquiry into all the obstetrical circumstances of the case. It should never be forgotten that the membranes are fœtal structures, and that one-half of the placenta takes its origin in the chorion. This being so, it is of great importance in every case of fœtal pathology to ascertain the condition of the chorion, amnion, and placenta. Too often, unfortunately, no reference is made to any such examination; frequently the after-birth has been destroyed at once, and no notice taken of its characters. A diseased fœtus without its placenta is an imperfect specimen, and deductions drawn from it cannot be considered as conclusive, for in the missing placenta or cord may have existed the cause of the disease and death. During intra-uterine life the fœtus, the membranes, the cord, and the placenta form an organic whole, and disease of any part must react upon and affect the others. Further, the whole of the mother's organism, but more especially her uterus, and the blood circulating in its vessels, has a connexion with the growth and health of the fœtus in utero, and therefore, as far as is possible, a history of the maternal condition during pregnancy and labour ought to be ascertained. The occurrence of an infectious fever in the mother during her pregnancy may explain the conditions found in the infant at birth, and many diseased maternal states may be found to make clear the cause of abortion or miscarriage. The residence of the mother in a locality where, for example, small-pox is prevalent, may be sufficient to cause that disease in the fœtus, the mother herself enjoying the immunity which has been conferred upon her by vaccination. Possibly some obscure cases of intra-uterine death may be traced to infectious fevers which are conveyed to the fœtus by the mother, who herself shows no evidences of their existence. Again, the occurrence of traumatism during pregnancy may serve to explain some fœtal conditions, and ought to be inquired into. The history of maternal impressions ought also to be thoroughly investigated, for although the connexion between a deformity in the fœtus and a mental state in the mother is exceedingly problematical, still the matter ought for this very reason to be carefully scrutinized and the facts recorded.

As has already been said, the symptoms which occur during pregnancy, and from which an idea may be gained of the state of the fœtus, are few and vague; but still they are not to be neglected. Sometimes a careful examination reveals the existence of hydramnios, a condition very frequently complicating fœtal abnormalities and diseases. Again, irregularity in the rate of growth of the uterus, cessation or undue activity of the fœtal movements, and changes in the fœtal heart-beat, may indicate abnormal intra-uterine states. A deficiency in the amount of the liquor amnii with its accompanying dangers may be suggested by certain physical signs. In other directions the history of the case may yield important information. The influence of the father in the production of fœtal disease and deformity is a factor which must not be forgotten. It is well known with regard to syphilis, and it is more than likely that several other diseased paternal states also may influence the fœtus. The effect of irregularities of the male element in connexion with the production of monstrosities is a matter which has not been investigated to any great extent; and it is impossible yet to foretell how far such a line of inquiry may yield good results.

Again, the whole question of heredity requires to be investigated in connexion with fœtal disease. In the case of hæmophilia it would seem as if the diseased tendency remained latent in the female until the supervention of pregnancy, and that then it appeared, but only in the fœtus, not in the other parts of the mother's organism.

The lines of research which have been already indicated are such as can be pursued by every medical man. Dissection, microscopic investigation, and the inquiry into the history of the mother's pregnancy and family history are means of investigation open to all. From sources not so generally available may be expected much that will be of interest in elucidating the problems of fœtal pathology. I allude to the *experimental methods of investigation.* Nature is constantly performing most delicate and accurate experiments in fœtal pathology, which it is possible artificially to imitate to some extent upon the lower animals. Laboratory experiments upon the passage of microbes through the placental tissues from mother to fœtus have been carried out of late years in the case of rabbits, etc., and although there is not yet a consensus of opinion upon the results, still the researches have thrown much light upon intra-uterine disease. Again, the elaborate teratogenic investigations conducted during the last twenty years by Dareste and others have thrown floods of light upon the subject of congenital malformations and monstrosities. So far these experiments have been made chiefly upon the hen's egg by altered incubation conditions, but there seems to be some prospect that the methods of Dareste may yet be extended to the artificial production of anomalies in forms other than the birds. In the laboratory also, investigations have been made upon the influence of the rise in the maternal temperature upon the fœtus, and upon the passage of chemical and bacterial bodies from the mother to the fœtus. The carrying on of experiments along such lines may be expected to yield valuable results not only as regards the pathology, but also with reference to the treatment of intra-uterine maladies. Medicinal substances may be discovered, which, like mercury and chlorate of potash, act beneficially upon the fœtus through the maternal system. Ante-natal therapeutics may be a larger subject than is at present supposed.

To summarize: the evidences that fœtal pathology has not advanced so rapidly as the other branches of medical study are to be found,—(1), in the character of the nomenclature of fœtal disease; (2), in the high fœtal or infantile mortality which everywhere prevails; and (3), in the imperfect nature of the systems of fœtal pathology in the teaching, oral and written, of the time. The causes of this delayed rate of progress are to be discovered,—(1), in the innate difficulty of the subject; (2), in the fact that till recently the allied subjects of embryology and fœtal physiology were also in a backward condition; and (3), in the want of a due appreciation of the value of fœtal health. The remedies exist,—(1), in the complete and thorough investigation of all cases of fœtal disease and malformation; (2), in the accurate recording of the history, obstetrical and medical, of the case; and (3), in the pursuit of the experimental methods of the laboratory.

In the series of communications which I hope to lay before this Society from time to time, it is my intention to describe some of the more important fœtal maladies and teratological conditions. I am enabled to bring forward these studies chiefly through the circumstance that there have recently passed into my hands many specimens illustrating very beautifully some of the most interesting diseases and malformations which affect the fœtus. I here gladly avail myself of this opportunity of thanking the various medical men who have supplied me with the material above mentioned. My thanks are specially due to Professor A. R. Simpson for the many rare specimens which he has permitted me to dissect. I have also gratefully to acknowledge material in the form of fœtuses and clinical details of cases from Sir William Turner, Dr Barbour, Dr T. B. Darling, Dr D. Menzies, Dr Murdoch Brown, Dr James Smith, Dr Ballantyne of Dalkeith, Dr Freeland of Broxburn, Dr A. A. Martin of North Shields, Dr Miller of Sunderland, Dr T. J. Baildon of Southport, and Dr William Paterson. The specimens which have come into my possession consist of several examples of anencephaly, of encephalocele, and of exomphalos, three cases of general dropsy of the fœtus, one of peromely, one of achondroplasia, one of pseudencephaly, one of congenital club-hands and feet, one of imperforate state of anus and penis, one of intra-uterine amputation, and others illustrating minor deformities, such as non-descent of the testicle, hare-lip, etc. Upon the dissection of these diseased and malformed fœtuses are mainly founded the results to be hereafter detailed; but reference will also constantly be made to the many important papers bearing upon fœtal disease and teratology to be found in the medical literature of this and of other countries. To each of the papers will be appended a bibliographical and descriptive index of the cases referring to similar conditions to be found scattered throughout our medical periodicals, and these lists, it is hoped, will be of use to future workers in this field of research.

## V.—AN EXTREME CASE OF HYSTERO-CATALEPSY—TRANCES LASTING 58, 30, 24, AND 12 HOURS; INSANITY; RECOVERY.

By Allen Thomson Sloan, M.D.

(*Read before the Edinburgh Medico-Chirurgical Society*, 20*th January* 1892.)

A. B., 19 years of age, pupil-teacher, of a sensitive and very affectionate disposition, religiously inclined, in ordinary matters and in the conduct of her class showing more than usual ability and self-possession; has three brothers and three sisters all perfectly healthy, with the exception of an elder sister, who suffers from anæmia. An aunt on the mother's side was subject to hysterical fits, and a sister of her father suffered from epilepsy.

The father and mother were of distinctly alcoholic tendencies, while previous to her marriage the mother had lived rather a gay life. Menstruation began when she was 17 years of age, but has been regular, plentiful, and accompanied by no special pain further than slight headaches.

Two years ago—in September 1886—she fell down in the street, and was carried into a chemist's shop, where she remained unconscious for four hours. She was attended by a medical man for three or four days, but no definite opinion was given as to the cause.

The following autumn she was attended by me for a hysterical attack, which was followed by aphonia for three weeks. During the last week of January 1889 she took a fit in school, and was unconscious for four hours, and was seen by Dr Murray, who pronounced it catalepsy. For a few days afterwards she was peculiar in manner, inclined to laughter and to make light of her attack. At this time she had a quarrel with the gentleman to whom she was engaged, and on the 31st of January went to a friend's house in the east end of the town, where she behaved in a very excited manner. She left about 8.30 P.M., after kissing her friend six times, coming back again and again to repeat her good-byes, and stating she intended to jump over the Dean Bridge. Several hours afterwards she was found sitting unconscious on the railings at Donaldson's Hospital, and was removed to Ward VI. Royal Infirmary, where she remained in that condition till between 9 and 10 A.M. Her mother questioned her, but all she could say was that she had felt her head light, and took a car home. She imagined she went to the tramway terminus, and wandered round and round some square under the impression she had asked her way home. Doubtless this lapse of memory immediately preceded a distinct attack of catalepsy. The fortnight after this she did not return to school, but was particularly bright and intelligent, and told all her hospital experiences. From inquiries, it seems that in Ward VI. it was considered at the time an ordinary hysterical attack.

On *Sunday the 24th of February* she lay in bed most of the forenoon, but rose and made her bed about 2 P.M., took a hearty dinner, and went to bed again about 4. Her mother noticed she took a slight convulsive fit, her face becoming purple and the breathing unnatural; she then turned on her side, and neither spoke nor moved in spite of all efforts to rouse her. She was seen first on Monday, 25th February, at 1 P.M., and was lying in bed with her hands stretched out at her sides, the body perfectly rigid, and to all appearance dead, save for the warmth to the touch, the bright colour in the cheeks and lips, and the faint but regular breathing occasionally broken in rhythm by an inaudible sigh, during which the chest was filled to its utmost capacity. The teeth and jaws were firmly clenched, the eyelids closed, but not tightly, the eyeballs turned straight up, the whites alone being visible, and the pupils with difficulty seen to be slightly dilated. The conjunctivæ were completely insensitive. Pulse was 90, well sustained, regular. The respirations 20 per minute, mostly natural, but occasionally broken by a prolonged inspiration and expiration about every fifth breath, but varying. The limbs were plastic, and capable of being moulded into any position, which, however peculiar, remained fixed. The head was bent on the chest, the back curved, each respective joint of the arm, the shoulder, elbow, wrist, fingers, the hip, the knee with difficulty was moved, and the result was the same, the ankle not so markedly as the others, and the toes remained flexible, but these only. Sensations of touch, heat, pain, and all the reflexes were completely abolished. Occasionally the saliva was swallowed; sometimes it frothed out from the lips. The jaw could only be opened and shut with great difficulty, and remained in whatever position it was put. Gravity had some effect in altering the position, as when bent forward the patient very gradually sank back in bed, though the head kept flexed on the chest. The patient responded to none of the ordinary stimuli—shouting into the ear, repeated pin-sticking, pinching, and slapping, dashing of cold water over head, face, and neck, the application of smelling-salts to the nostrils, the blowing of snuff up the nose, the tickling of the throat by a feather, and pressure over the ovaries, though this produced a slight purple flushing of the face, as did also handling of the sensitive parts, which made one fancy unconsciousness was not altogether complete. Pins stuck into any part of the body produced no sensation of pain and no bleeding. The bladder was completely empty on percussion, the heart sounds distinct, unaccompanied by murmur, normal in strength, rhythm, and position. The only movement produced was on opening the eyelids, which caused continuous fibrillary twitching, more especially confined to the upper eyelids, and which remained for several minutes, or sometimes as long as she was under observation.

At 7 P.M. the condition was unchanged, except that there was external strabismus, and the breathing had become very shallow and rapid, sometimes as fast as 40 per minute, and broken occasionally and irregularly by a prolonged sigh. Efforts to rouse her again only resulted in a slight extra flushing of the face.

11 P.M.—Condition unchanged, but position of upper limbs unaltered from posture put in at previous visit.

*Tuesday*, 26*th February*, 9 A.M.—Limbs more rigid than ever; pulse, 90; respirations gentle, shallower, faster; bladder quite empty.

2 P.M.—Limbs slightly more mobile; conjunctivæ more sensitive; internal strabismus.

4.30 P.M.—Pulse, 96; respirations rapid, light, and shallow, as often as 90 per minute, every twenty-fifth being broken by a sigh, sometimes audible, and occasionally heard by the attendants in the room.

7 P.M.—Condition unchanged in any particular.

11 P.M.—Conjunctivæ quite sensitive; fibrillary twitching of eyelids well marked; muscles much less rigid than in the morning; respirations faint, rapid, 90 per minute; sighs more frequent and audible. Various rough efforts were again made to rouse her, and to banish any thoughts of malingering one medical friend moved a leg, while another fixed the arm, then the limbs were moved suddenly in the reverse directions. Douching, blowing snuff up the nostrils, and slapping from head to foot with wet towels were all again resorted to, the only effect being a purple flushing of the face, with flow of frothy saliva from the lips. Milk placed at the back of the mouth was partly swallowed, but mostly flowed back through the lips. Weights were applied to the various limbs; an ordinary kitchen iron was attached to the foot and arm while raised in the air, but they only swayed slightly, not greatly lessening resistance, though time was not given to watch the action of gravity.

*Wednesday, 27th February*, 9 A.M.—Patient had remained in the same condition till 2 A.M. on Wednesday morning, having been in cataleptic trance from 4 P.M. on Sunday afternoon—fifty-eight hours—taking no food, responding to no external stimuli, with all her functions completely suspended, as the bladder continued quite empty, and no urine nor fæces were voided in bed.

At 10 P.M. on Tuesday a peculiar incident worth noting occurred. A brother was sent into the room to see how his sister was keeping, and thinking she looked very strange he fancied her dead, and leaning over her in horror, he cried out, "M——, are you dead?" She raised herself up, gazed vacantly and without recognition into his face, then sank stiffly and gradually back, her face flushing and her mouth frothing, in an apparently convulsive effort to speak. When wakened at 2 A.M., she asked her mother why she had allowed her to sleep so long, and was given milk to drink, which she swallowed quite readily along with some bread, and this was repeated two or three hours after. I saw her at 9 A.M., when she was lying smiling in a sort of vacant manner; and as her memory was quite confused and her mind disturbed, I thought it wiser to let her think she had just wakened out of sleep. The tongue was clean and moist, pulse 80, temperature normal, the muscles quite soft and flexible, and mobile at will. Her expression was absent and silly, and her thoughts carried her back to four weeks ago, to the seizure she had first taken, the last day she was at school. She complained of great muscular soreness all over the body, especially in the right arm, which had been most subjected to movement. At 11 A.M. she had some tea and fish, and at my suggestion got up and dressed, and went about the house as usual. She continued apparently well, but in a state of mental instability, easily excited to laughter or tears, till about 3 P.M., when I was suddenly sent for, to find her exactly in the same condition as before. The attack had come on quite suddenly in the kitchen, while sitting on a chair speaking to her father, who immediately tried to rouse her and divert her attention from herself. She spoke a little, saying her head felt very strange; and she wondered what was wrong, as she felt her jaw stiffening; then made an apparent unsuccessful effort to speak, and became unconscious, remaining fixed with her arms stretched out in the exact position she occupied in the chair. Her clothes were removed with difficulty, and she was forced into bed, where I saw her immediately afterwards. The limbs were again perfectly rigid, her eyes turned up in a state of external strabismus; pulse rapid, 120; and conjunctivæ completely insensitive. Suspecting possible malingering, I put her on the edge of the bed, with the shoulders hanging over and the head bent back, and poured a whole ewer of water over face, head, and neck, with no effect further than to produce the flushing of the face and frothing at the mouth as before. I then extended one leg straight up from the hip, folded her two hands in an attitude of prayer, bent the head on the chest, the trunk leaning slightly forward, so that she was actually sitting on one hip on the edge of the bed, and in that position she remained without the slightest alteration, till her limbs were forcibly put in more natural positions. At 7 P.M. her condition was unchanged; but I learned that through the day she had passed a small quantity of urine, and the bowels had moved slightly, though unfortunately nothing was able to be preserved.

At 11 P.M., in her hearing, as I was under the belief she might still be shamming, I threatened to apply the actual cautery to the whole of her spine and to feed her by the stomach-pump. By previous directions, she had been left in the room entirely alone, being watched from a neighbouring bedroom, and a false alarm of fire was raised to rouse her, but in vain.

At 9 A.M. on Thursday the 28th she was lying on her left side, but still quite rigid. I turned her round, forced her into a sitting posture, with difficulty opened the mouth, and fed her with custard by the stomach-tube. Slight efforts at vomiting were made on the introduction of the tube, and her tongue moved slightly in the mouth, this act being followed by the flushing of the face and frothing at the lips as before. At 1 P.M. two large fly-blisters were applied over the ovaries. At 2 P.M. the conjunctivæ were more sensitive, and the muscles certainly less rigid than before. At 4 P.M. her pulse was 100, and the temperature in the axilla 99°, the first rise in temperature since the commencement of the attack. At 5 P.M. she was seen by Professor Annandale and his Resident, and for purposes of demonstration she was put in every conceivable peculiar position; her jaw was forced open, and she was again fed by the stomach-tube with beef-tea and egg, a small quantity of which came back by the mouth, and slight efforts at vomiting were made on the introduction of the tube, the face flushing and mouth frothing as before. Pins stuck in various parts of the arm produced no pain, and were followed by no bleeding, while the bladder still remained quite empty.

At 9 P.M. she had come out of the fit, having remained unconscious thirty hours. The muscles were quite mobile and responded to the will, but her pupils were widely dilated, and her memory was a complete blank as to what had happened during the last five weeks, while her smile was silly and vacant. She said her head felt light and dazed, just as if she were tipsy or had come out of chloroform, while her whole body felt stiff and sore. The pulse and temperature were normal. The sensation of touch was impaired in the fingers of both hands, and those of pain and heat delayed; the skin and deep reflexes were normal. During this second attack of thirty hours the urinary function was again suspended, as no urine was passed, and the bladder found quite empty. The first urine passed was on Friday morning the 1st of March—quantity, 4 oz. of highly concentrated urine, muddy in colour, loaded with urates, acid in reaction, specific gravity 1026, containing a small quantity of phosphates, but no albumen nor sugar, and very slight traces of bile. The bowels moved once freely, but there was nothing of importance to note but that the fæces were dark in colour. On this (Friday) morning she was lying smiling vacantly, with pupils widely dilated and not readily responsive to light. The memory was quite confused and speech incoherent, though she complained of great muscular soreness, especially in the right shoulder and arm, and that her head felt strange and light. In this condition she remained all day, though in a high state of mental exaltation, easily excited, and inclined to become wildly hysterical and cry, and so on through the night, only being controlled by the firmness of her mother.

On *Saturday, March 2nd*, at 11 A.M., the pupils still continued much dilated, though less than on the previous day. Her manner was much more collected, and she was able to give a fairly definite account of her leaving school and what took place in it Wednesday five weeks ago.

On *Sunday*, at 10 A.M., the pupils were quite natural; her mental condition quite acute and reasonable; and the girl able to give a most intelligent account of her condition, and in every way quite well, except that her right arm from the shoulder downwards was rigid as before, remained in any position it was put, and was insensible to touch, heat, and pain. All the other parts were perfectly normal, except the plantar reflexes, which were much exaggerated, and the left hand and arm, which were cold and blue; the temperature 1° less than on the right side, distinctly sub-normal. The patient was sitting taking her breakfast quite calmly, and repeated her story of leaving school correctly and without hesitation.

At 6 P.M. patient's mind was perfectly clear and collected, but the right arm remained exactly in the same condition, when all the previous tests were re-applied, and, in addition, the faradic and galvanic currents all over the arm, and also to various parts of the spine, cervical and dorsal.

The arm was absolutely devoid of sensation, though both muscles and nerves responded to the strong faradic current, the flexor muscles especially being most responsive. The greatest effect was produced when the sponges were placed over the origin and insertion of the biceps muscle and over the commencement of the brachial plexus, also over the ulnar nerve at elbow and wrist. The galvanic affected individual muscles less, but when applied over the nerves moved the whole arm in successive jerks, but with the exception of slight tingling at the points of the fingers no sensation was felt, though the other hand could not hold the handles. The pupils were still widely dilated, the left hand cold and blue, while on the under surface of the arm and elbow there was marked hypostatic congestion.

On *Monday, March 4th*, at 2 P.M., patient was exactly in the same condition as on the night previous, though complaining of a feeling of weight and deadness in the right arm. She was most anxious to have the battery, and was evidently desirous of getting well as soon as possible. The pupils were more natural and responsive to light. The purple colour of the lower part of the left arm more marked.

At 8.30 P.M. she was sitting sound asleep in a semi-upright posture with her supper half finished before her, her fork held between the bent fingers of the left hand, the right arm rigid as before. When wakened she seemed startled, but said she had an irresistible desire to sleep all day. The conjunctivæ were sensitive, and the temperature and respirations quite normal; as also was the urine, though the total quantity could not be accurately estimated.

On *Tuesday*, *5th March*, at 11 A.M., patient was found lying on her left side soundly asleep, and was with difficulty roused, though even during sleep her arm was bent stiffly across her chest, as rigid in every particular as before. In the morning her father had found her asleep sitting over her breakfast, just as had been observed the night before. The pupils were again more dilated than natural. The battery was applied over the arm, along the spine, and over the ovaries. Applied over the cervical and dorsal regions, it had the effect of completely drawing back both shoulders; and over the ovaries it caused strong contractions of the abdominal muscles. Over all parts of the body painful sensations were produced, but on the right arm no sensation whatever, though the muscles freely responded to the current. The bowels had moved once freely, the motion being dark in colour, but very little urine continued to be passed.

In the evening, at 7.30 P.M., after having been fairly calm all day, but slightly nonsensical in her thoughts and suggestions, she relapsed into a general cataleptic condition, the unconsciousness and general rigidity being preceded by a flushing of the face, with fixing of the muscles of the jaw and slight frothing at the mouth as before.

At 10.30 P.M. she was found lying unconscious in bed, with her head lying well back on the pillow and slightly inclined to the left side, the balls of the eyes turned straight up with the pupils entirely hidden, and with difficulty found to be contracted. The conjunctivæ were almost insensitive, and movements of the eyelids produced fibrillary twitching, which lasted for a minute or two. The colour of the lips and cheeks was good, the pulse 90; respirations 40 per minute, mostly abdominal, faint and shallow, broken irregularly as before by a prolonged inspiration and expiration. All parts of the body, with the exception of the toes, were completely rigid, and the reflexes completely abolished. The galvanic battery was applied over various parts, especially over the left arm, all the muscles of which responded freely, particularly the flexors—the fingers, wrist, and elbow remaining fixed in any peculiar position the contraction of the muscles caused them to assume.

On *Wednesday*, *6th March*, at 9 A.M., the condition was quite unchanged as regards sensation or rigidity. The eyes were in a state of external strabismus. The colour of the lips and cheeks was good, but the pulse very weak and rapid, 140 per minute, while respiration was very shallow and faint. She was again fed by the stomach-tube; and as her pulse was so feeble, half a glass of whisky was mixed with the egg and milk, after which the pulse improved slightly. Efforts of vomiting were made on the introduction of the tube, and about a tablespoonful of the egg flip came back through the lips. The tongue moved freely in the mouth, but the only general effect was flushing of the cheeks as before.

At 2.15 P.M. patient was again fed by the stomach-tube with beef-tea and egg. The pulse was much improved, 100 per minute, and the respirations, chiefly abdominal, 80 per minute. At 10 A.M. she had been lifted out of bed and laid on the floor, her muscles remaining quite fixed until raised into bed again, and she was still in a state of absolute unconsciousness. In the course of the afternoon the case was seen by Dr Byrom Bramwell, who for some days had been greatly interested in the account of it. At this time the patient was still completely cataleptic; and in addition to previous tests, together we laid her on the backs of two chairs, widely apart, and without any support whatever. There she remained, like some modern Galatea, bereft of life. Anxious to try the effect of drugs, Dr Bramwell first injected hypodermically half a grain of nitrite of sodium, with the effect of only slightly flushing the face; and it is very interesting to note here that the action of the drug was undoubtedly delayed. Ten minutes afterwards another half grain was injected, with the effect of producing a general blush, which spread widely over face and neck. No perceptible general relaxation of muscles was anywhere detected. After a short interval it was suggested we might try apomorphia, and this we did with some hesitation, as the pulse was far from good. 1-20th grain was first injected, but the only effect it had was to produce the deadly pallor which precedes sickness. The full dose, 1-10th grain, was then injected, and after a delay of twenty minutes, carefully timed, profound sickness was induced, accompanied by death-like pallor of the face and upper part of the chest, profuse cold perspiration, and great lowering of the pulse. Efforts of vomiting were then made, but only a little mucus and some remains of the custard were rejected. Next to the complete suspension of the urinary function during the trance, this remarkable delay in the action of so potent a drug as apomorphia is worthy of special notice, as also the fact that even during the very act of vomiting no actual relaxation of the muscles was anywhere observable, the patient remaining profoundly cataleptic. In the evening, at 7.30 P.M., about two hours after the apomorphia injection, patient had awakened out of the trance, had no recollection whatever of what had taken place immediately before, and was in every respect fairly well, except for the rigidity of the right arm, which was completely devoid of sensation as before.

Next morning, *Thursday the 7th March*, Dr Bramwell kindly came to see the case about 9 A.M. The zone of insensibility of the right arm and shoulder was carefully mapped out, and extended half-way down the shoulder-blade and under the axilla, and all the ordinary tests were again applied. It was thought advisable to examine the eyes with the ophthalmoscope. The left eye was perfectly normal, but as soon as the bright light was turned on the right eye the patient became cataleptic where she stood. The condition of trance lasted till 9 P.M.—about twelve hours—and the appearances were exactly similar to those already so fully described. On wakening up, however, her mental stability was totally gone. Her right arm, which remained rigid as before, "had been petrified at the petrifying well at Knaresborough." She was no longer 19 years of age, but an old maiden lady of 50, whose hair was gray, and who had just returned from an imaginary voyage round the world, having been nearly wrecked in a terrific storm in the Bay of Biscay. French was a much more polite language than English; and to show her familiarity with it she wrote with her left hand, in beautiful letters and in very elegant French, an exciting account of the scene on board ship during the storm and threatened shipwreck. For a day or two she was allowed the run of the house, was sent out walking carefully guarded, and during that time she took her food and slept well, amusing herself by playing tunes on the piano with her left hand, but the delusions remained fixed as before. Several times she was seen during sleep, but on no occasion did the right arm relax or resume its normal condition. With some reluctance, but for the sake of better treatment, she was certified as a lunatic and removed to Morningside Asylum, under Dr Clouston's care.

It is worthy of note that when the attendants came to remove her, she stooped down and laced her boots with the right hand, evidently under the influence of strong excitement.

To Dr Middlemass I am indebted for the following notes taken in the Asylum :—

"The morning after admission she said that her memory was much improved, and she had got rid of some of the delusions she had expressed on the previous day, notably in regard to her age. She distinctly remembered her condition of the day before, and stated that she fully believed the statements she then made, but could give no explanation of them.

"She improved considerably, but about three weeks after admission she was found in the morning in a condition of trance. She was apparently sleeping, was not roused when spoken to, and took no interest in her surroundings. The muscles were plastic, but had not the waxy pliability of the true cataleptic state, there being a marked degree of resistance to movement on her part. Her limbs could be placed in any position, however, and remained in the attitude given to them. She apparently felt no pain, took no food, and passed no water during the trance. The eyelids and fingers were not rigid, but were in a condition of fine rhythmical tremors. The temperature was 97° F., and the respirations were short, sharp, and rapid, with occasional paroxysms of sighing and deep inspiration. The pulse was slow, but regular. On everting the eyelids she turned her eyes up and rolled them about. She remained in the condition of trance for thirty-four hours, when she awoke quite suddenly. It was found that she had bitten her lip, which was bleeding slightly. She asked various questions as to what day it was, etc.

"Two days later she was found in the early morning in a similar condition of trance. This lasted till the same afternoon, when she again bit her lip and tried to make a fuss about the bleeding. Snuff had no effect in making her sneeze. When awake she asked if she had had the battery, and seemed desirous of attracting attention to herself. She was told to do some work, was given a pill containing valerianate of zinc and soda. The urine was found to contain oxalates and phosphates. She was discharged recovered after two months in the Asylum."

I had the satisfaction of hearing, the summer before last, that the patient had continued quite well, and was teaching in a school in Manchester.

## VI.—CONCERNING THE KINSMEN AND FRIENDS OF INSANE PATIENTS.

By FRANK ASHBY ELKINS, M.B., Assistant Physician, Royal Edinburgh Asylum.

ROUGHLY speaking, the kinsmen and friends of insane patients may be divided into three classes. The first and most numerous class consists of people who are apparently apathetic and uninterested in the fate of the mentally afflicted, who neither write nor visit their insane relatives, and seldom or never trouble the asylum doctor. The second class comprises those sensible folk who help, by all means in their power, the doctor's endeavour to get a cure, and generally take a deep interest in the treatment and in all that concerns the patient's welfare; and the third class is made up of interfering, unreasonable people, who are a constant source of irritation to the asylum physician, and, though well meaning, are often unkind, and even cruel, to their insane friends. This last group, as might be expected when it is remembered that the patient and his relative have the same heredity, is by no means small.

In the majority of cases admitted to asylums the patient is conscious that he is ill, and there is no doubt that the proper course to pursue, in most cases, is for the nearest relative or the family physician to explain to him that on account of his mental illness he requires asylum treatment. Whilst many of the insane may, to some extent, be made to see the necessity for such a step, in other cases the announcement will only call forth resistance, or it may be that the patient is too fatuous to appreciate his position at all. But in nearly every case it seems to me the plain duty of the relatives to explain matters to the patient as far as possible.

Frequently the friends resort to deception. The patient perhaps goes out for a drive, and is landed unceremoniously at an asylum, where he is left, without any explanation, in an agitated state, not knowing what is going to happen next, and feeling that his friends have deceived him. If he be an imaginative person, who knows nothing of modern asylums, he probably has visions of "cells" and "strait jackets;" and to the asylum physician—an utter stranger—is left the difficult task of reassuring him. Deception can but do the patient harm, for it destroys his confidence in his friends, and makes him suspicious of every one.

The task would be endless to enumerate all the deceptions practised on patients to get them to an asylum. Some come on a visit or to make a call; some to be photographed; some to see the city; some to receive a pension; some to inspect the dairy; some to get a situation or money; and some to rescue an insane patient out of the asylum!

Some friends will offer strange advice to the doctor as to treatment. One man, when bringing his wife, remarked that she had needed thrashing twice a week, and recommended the practice to be continued! Another man said that his brother always had been a d——d fool, and deserved to be insane! In two cases the friends wished to discuss the arrangements for the funeral, in case of death, of fairly healthy persons who were in the next room! There is no doubt very great allowance should be made for the behaviour of friends of patients on these occasions. Perhaps the patient has rendered his home uninhabitable, or his conduct has been utterly outrageous, or he may have been restless and sleepless at night, or threatening suicide, so that the relatives are only too thankful to run him into an asylum, and throw the responsibility of his care and treatment on other shoulders. We therefore see them under great disadvantages. Often the friends seem almost as "muddle-headed" as the patient, in consequence, no doubt, of anxiety, sleepless nights, and general mental strain, not to speak of the whisky that has been imbibed to enable them to face all this.

There is nothing sadder than to admit a patient who, owing to his insanity, extending may be over months or years, has made an enemy of every friend he had. The friends can seldom be brought to see that a man's eccentric, disagreeable, and perhaps immoral behaviour is only a part of his insanity. The goody-goody members of his family will say, with a shake of the head, they are not surprised at his insanity after such a life as he has lately been leading; and when they visit him, it is only to speak to him of his sinful ways, and beseech him to pray for forgiveness!

The public seldom recognise insanity when they see it, except in its grosser and more obvious forms. Even when patients are brought to asylums, the friends often say, "He is not insane, but just a little dull," or "He knows what he is about, but he has just taken these fancies."

Insanity does but cause derision on the streets. Most people chaff the village fool; and who would think of denying the children the innocent enjoyment of rousing his temper, over which he has so little control? It is only after he has struck and hurt one of his tormentors that the village considers him dangerous, and hurries him off to the nearest asylum, where probably he spends the rest of his days usefully employed and free from molestation, but at the cost of the ratepayers.

An asylum physician necessarily looks on the eccentricities in conduct and speech of his patients as symptoms of brain disease, and he perhaps hardly appreciates how distressing these vagaries sometimes are in the eyes of the patient's visitors. But these sympathetic and sensitive friends should not be, and in my experience are not, deterred from visiting in consequence. They are among the best, most attentive, and kindly of visitors.

There are some people who visit an asylum with whom it is a pleasure to deal, but I have said that many relatives and friends never set foot on the asylum property. A considerable number of these latter, no doubt, can be excused either on the ground that in their ignorance they imagine it would be like a visit to the nether regions, or else on account of their own weak nervous and bodily state. But I fear that, with the majority, they fail to visit because it is too much trouble.

Some visitors, with preconceived notions about insanity not easily shaken, and got by hearsay or reading, come expecting to be shocked or entertained. They are on the look-out for eccentricities, and usually find some, which they magnify in after conversation. They live, so to speak, in an artificial atmosphere mostly the creation of their imagination, and their own conduct is frequently so peculiar that the older patients take them to be new cases just arrived.

It has been pointed out elsewhere[1] that, broadly speaking, and not taking into account many exceptions, mothers and maiden aunts are the last relatives to forsake their insane kinsmen, and that husbands and wives, in spite of their bridal promises, are the first to fall away. In other words, it seems as if the love which cements the tie of marriage was not so strong as that of blood relationship.

Visits often excite or otherwise upset the patient, and may retard recovery, so that the medical attendant has to advise against them. Frequently this advice, intended for the benefit of the patient, only creates suspicion and produces unreasonable argument. I knew a lady who was slightly melancholic, and had had a previous attack, who came again to be cured. She had three sisters,—one so excitable as to be only just within the borderland of legal sanity, another so emotional that she began to weep immediately she entered the asylum grounds, and the third, a sensible woman, whose cheerful presence might have done her good. The excitable sister and the emotional sister would certainly have done harm, and were only dissuaded from their purpose of visiting after lengthy and tiresome conversations ; and the sensible sister had also to be dissuaded, for fear of causing jealousy in the other two! At one time the two first-named sisters were most urgent in their desire to see their melancholic sister, and I discovered from the third that there had been a family quarrel about the sale or purchase of some household furniture, and each wished to enlist the insane sister's sympathy!

From my experience, I believe that differences and quarrels are more prevalent in families where there is insanity. It is remarkable how many such crop up in connexion with the history of insane persons, and the doctor has often great difficulty, whilst treating with both sides of the house, in not getting involved in the quarrel himself. Sometimes a collision is inevitable, as when some of the relatives positively assert that the patient is not insane, usually adding that those who put him into the asylum did it from some bad motive.

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[1] Clouston's *Mental Diseases*.

Patients are frequently spoken to in an unkindly and unsympathetic manner by their visitors, and sometimes unfeeling remarks are made about them in their presence. It is not uncommon for patients to be scolded, lectured, and threatened. I knew one gentleman whose former partner, in paying him a visit, gave him a thorough good "blowing up," and used not a little bad language to emphasize his remarks. In this special case I believe it might have done some good, and at any rate no harm followed, but it is hardly a line of treatment that can be recommended. Not long ago, a drunken father visited his melancholic daughter, and because she refused to speak to him, promptly gave her a black eye!

It is strange how many drunken people visit asylums. I think there are two causes for this. Looked at from a moral standpoint, drunkenness is but the result of loss of self-control, and this mental defect is what one would expect to find in an insane man's relatives. But I have lately been led to believe that some voluntarily make themselves drunk before visiting us. The intense, but utterly unreasonable horror which some people have of asylums makes them imbibe liquor freely before making the dreaded visit. Numbers of sensible folk believe that if they were to visit an asylum it would only be with their lives in their hands. It is better that we should have interfering, disagreeable visitors than none at all. Although we should not hug the drunken visitor to our bosom, yet his sympathy is better than the awful apathy of the majority of the friends.

Amongst the numerous articles which find their way into the visiting-room, it will seem almost incredible to name whisky, milk, matches, medicine, and razors. I have known a bottle of whisky to be found in the pocket of a maniacal patient after a visit from his mother. It is charitable to believe that this poor woman was in the good-natured stage of inebriation, and that in a burst of maternal sympathy and affection she had given her son a thing she highly prized herself—her own whisky bottle! I knew another woman who brought milk regularly to her husband, although she was told it was like bringing coals to Newcastle. Matches intended to light the patients' pipes might, if allowed, lead to larger and more dangerous conflagrations. If the patient be found not to be getting any medicine, the relatives sometimes supply the "want" by introducing patent medicines, recommended for the cure of nervous diseases. In one case I found a patient religiously taking a most obnoxious "soothing syrup," which a friend had brought him to cure his epilepsy.

Many digestive troubles follow in the wake of a visit made by a too kind friend, who has literally stuffed the patient with "goodies." In the case of semi-paralyzed patients, it is often necessary to warn the relatives that there is danger of choking, One woman, after repeated warnings that to feed her father was dangerous, and after being told by the nurse that he was having a special liquid diet, and even then required most careful feeding, fed him with sponge-cake, and very nearly brought about his end, for when I was hurriedly sent for I found him livid and nearly choked. Another old lady, after a similar warning, came next time armed with a drinking-cup and some liquid food, and it was necessary to place an attendant on duty to see that no harm came to the patient during the process of feeding!

One delightful old lady, who was a brilliant conversationalist, used to tell under her breath all friends who called upon her that her niece, with whom she lived, beat her shamefully every night. The servants could not be got to stay in the house, because they were constantly accused of theft, when the dear old lady, from her extreme loss of memory, could not find some of her valuables, which she had herself misplaced. When her niece, who had been boycotted by many of her friends on account of her aunt's delusions, was at last compelled to place the old lady under treatment, her action was considered most heartless and cruel. After the patient came to the asylum the same delusions persisted. At the evening parties, on account of her interesting personality and her social instincts, she was a great acquisition. Frequently she would take the doctor on one side, and, forgetting altogether who he was, would tell him, in a most pathetic manner, how she was beaten every night by her attendants, and how they stole her jewelry, in spite of all remonstrances to headquarters! Many complaints against asylums arise in the same way. It is a remarkable fact, as has been pointed out by more than one distinguished Alienist, that the delusions and suspicions of *old* insane people usually refer to things that are possible to happen. *Before* coming to asylums, old persons frequently believe that their friends are faithless or wish to poison them, or that people steal their clothes or money. *After* they come to the asylum they often think and tell their friends that they are starved or beaten.

That there is still the grossest ignorance and superstition regarding the nature, causation, and treatment of insanity the following letter, addressed to me by the sister of a patient, will amply testify:—

"10*th October* 1891.

"Dear Sir,—Thanks for your minute description of my afflicted brother's condition. He is naturally too quiet; but, sir, I would like you to believe and understand that he is possessed by an evil spirit; and by God's blessing, if you would try the experiment of taking great believers of all Christian denominations to his bed, notwithstanding the raving, he would soon get better. It is not he that speaks and acts, it is the evil spirit. Though loathing in such cases is natural, our Saviour showed His power while on earth, and there are the same evil spirits still tormenting mankind. Gladstone says (*Christian Herald*),—'I am afraid that the objection to demoniacal possession involves, in germ, the rejection of all belief in the supernatural.' Unless he got hurt on lying in bed so long, I believe the same cause might grip his inside. It is a great thing to know he is so kindly treated in your hospital, but know all the circumstances before he went there, and his mind on all subjects, poor dear fellow.

"Please try this, and again write to his sympathising sister.—Yours respectfully, A. B."

Letters to patients, as a general rule, are too infrequent, and those received too often contain news of an exciting or depressing nature, which common sense should indicate as unsuitable. Deaths of near relatives, a husband's unexpected return from foreign parts, details of suicides, family quarrels, etc., etc., are all told without any regard for the consequences. Some patients get neither letters nor visits. If they are private patients the half-yearly account is paid, and perhaps there is a cool request that the doctor should write a yearly letter to say how the patient is enduring life!

I know two gentlemen where the exciting cause of a relapse in their mental illness, whilst staying in the asylum, was due in each case to a lawyer's letter worrying them about their business.

The following letter, an interesting psychological study in itself, was written by a lady, Mrs Z., to a pauper lunatic patient, William A., and it related to the lunatic's wife:—

"*5th November* 1891.

"Mrs Z. writes to tell William A. that his wife is laid up with a very bad throat, and has written to ask Mrs Z. to go and see her, as she has no friends.

"Mrs A. has suffered severely from want, and has always been well conducted and patient in her troubles. Mrs Z. is sorry that her husband should have shown her such undeserved cruelty."

This lady's sympathetic feelings had evidently outrun her better judgment, and she no doubt honestly believed that William A.'s insanity was more reprehensible than pitiable. One would have thought that the poor man's mental illness would have shielded him from needless reproach. A shrewd old attendant, to whom I showed the letter, and in whose hearing I had spoken rather harshly of William A.'s wife, said, "Don't blame the woman, doctor. A carriage and pair at a poor body's house means money!"

Not a few patients are taken away before their recovery is complete. The patient is in the querulous or "half-way-house" stage towards recovery. He cannot realize how ill he has been, and he does not see the necessity for staying or for restrictions and supervision. The friends are sometimes weak enough to reject medical advice, and to act on the patient's wishes. If complete recovery takes place at home the doctors are laughed at, but there is another side to the question. Not long ago a man with a bad heredity was making a rapid recovery from his second attack of melancholia, in which he had shown a suicidal tendency. His wife came to see him when he was in the querulous state I have described, and backed him up in his arguments to get home. The doctor, however, looking to his heredity and to the fact that he had recovered so quickly, remembering also that it was his second attack, and that he had lately been suicidal, refused his request to leave, and strongly recommended him to wait and be patient a little longer under treatment. The wife, however, by a ruse managed to compass her husband's escape, and a few weeks afterwards he committed suicide in his own house.

Until the beginning of this century the victims of mental disease undoubtedly met with much cruelty, neglect, and unkindness in asylums, which were rather prisons to incarcerate them than hospitals for the relief of their malady; but I do not think it has been pointed out with sufficient emphasis that at the present time if the insane meet with any cruelty, neglect, and unkindness, it comes chiefly from the patients' own relatives and so-called friends. In explanation, the ignorance and bad heredity of many of the patients' relatives must not be forgotten.

Then, too, we must look to the past. There were real and terrible abuses in the asylums of former days which were a blot on civilisation, and it is no wonder some people are still suspicious of these institutions and their officials. The literature of that period very properly exposed the mismanagement and ill-treatment in madhouses. The public imagination was fired by the narratives, the public conscience was roused, and at length human sympathy and medical treatment were extended to the outcast lunatic. Having once been painted vividly, the picture still creates a deep impression, and it must be many years before an enlightened public can believe in the good faith of asylum officials.

## VII.—CASE OF CONGENITAL OBLITERATION OF THE SMALL INTESTINE.

By JOHN THOMSON, M.D., F.R.C.P.E., Extra-Physician to the Royal Hospital for Sick Children; Lecturer on Diseases of Children, School of Medicine, Edinburgh.

(*Read before the Obstetrical Society of Edinburgh, 10th February* 1892.)

MRS G.'s infant (male), two and a half days old, seen on 12th Nov. 1890, on account of complete obstruction and constant vomiting, along with my friend Dr Home Ross, to whose kindness I am indebted for permission to publish the case.

*Family History.*—Father and mother healthy; no syphilis. The mother has had four pregnancies. The first child is alive, but is strumous; the second was still-born (full-time, cross-birth);

the third pregnancy ended in a miscarriage at the fifth month owing to the presence of an ovarian tumour. The patient is the fourth child.

*Pregnancy.*—When the mother was about two months pregnant [1] she had a left ovarian cyst removed by laparotomy. The operation was not a complicated one. Shortly after it, she had a threatening of miscarriage which was successfully treated by large doses of morphia. After that, everything went well till the full term.

*Birth* (10*th November*, 3 A.M.) easy and natural. There was an extremely large quantity of liquor amnii, and an unusually thick layer of vernix caseosa, both said to be of perfectly normal colour. The child's extremities were noticed to be very blue, and his body of a brighter red colour than usual.

*Since birth* he has vomited everything given to him (milk and water, and four doses of castor-oil). No motion of any kind has come from the bowel. The skin has gradually assumed a distinctly yellow tinge.

*Present Condition.*—The child is well developed and of natural size. The skin is bright red, with a strong orange tint. The conjunctivæ are only slightly yellow. The lips, the vertex of the scalp, the palms and soles, and the neighbourhood of the anus, are all markedly cyanosed, and there is a bluish tinge over some other parts of the body. The tongue and gums, however, are quite free from this. The child cries constantly, as if from hunger. No external malformation. The thorax is well shaped, but there is considerable indrawing of the episternal and epigastric regions with each inspiration. The percussion-note over the bases of the lungs is not very clear. The examination of the heart reveals no abnormality.

*Abdomen* not distended, but its walls are very tense. On percussion a tympanitic note is got over the region of the stomach, but over all the lower part of the belly the note is absolutely dull. The liver and spleen cannot be felt. The anus seems small, but admits the little finger without much difficulty, and is felt to contain a few soft rounded masses. These, when removed by an enema, are found to amount to rather more than a teaspoonful in bulk. The matter is absolutely without odour and of a whitish colour, with no tinge of green or yellow. It consists of rounded agglomerations of little many-sided bodies, from the size of a lentil to that of a split pea; these have an ivory-white colour on section, and the consistence of lightly-boiled white of egg, and they are held together by thick white mucus. There is also a little pasty amorphous matter. (The contents of the rectum were put into spirit and afterwards examined microscopically. They seemed to be composed of epithelial débris.) When the rectum is cleared, the little finger can with some difficulty be passed up nearly 2½ inches, and there is no obstruction. The vomited matter is greenish-yellow in colour. The urine passes freely. At first it is said to have been clear and not to have stained the clothes; now it is thick and dark, and stains them yellow. On the prepuce and on the napkin there is a large quantity of "brick-dust" deposit.

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[1] The last menstruation began on 4th March; the operation took place on 23rd May.

*Treatment.*—In addition to the enema, several injections of glycerine were given.

*Progress* (*November* 15*th*).—Child more deeply jaundiced. Continues to vomit everything. Has passed nothing by the bowel but a few drops of colourless fluid.

*November* 19*th.*—Has not vomited at all for two days, although taking a little sugar and water. One very small colourless motion. Urine dark, staining the napkins yellow. Child becoming extremely emaciated. Cyanotic tinge almost gone. On removing the napkin the child is found to have passed about half a teaspoonful of dark-green matter, homogeneous and slimy. The shade of colour is not so dark as that of ordinary meconium, and is a good deal yellower.

This was submitted to Dr Noël Paton, who kindly examined it, and reports :—

"Specimen consisted of several very small, irregular masses with a greenish-yellow colour, some parts distinctly green, other parts yellow. The pigment is insoluble in alcohol, chloroform, or ether. On treatment with alcohol and sulphuric acid the yellow pigment goes into solution; the green pigment does not. The solid masses of green pigment, when treated with nitroso-nitric acid, give a faint but distinct play of colours.

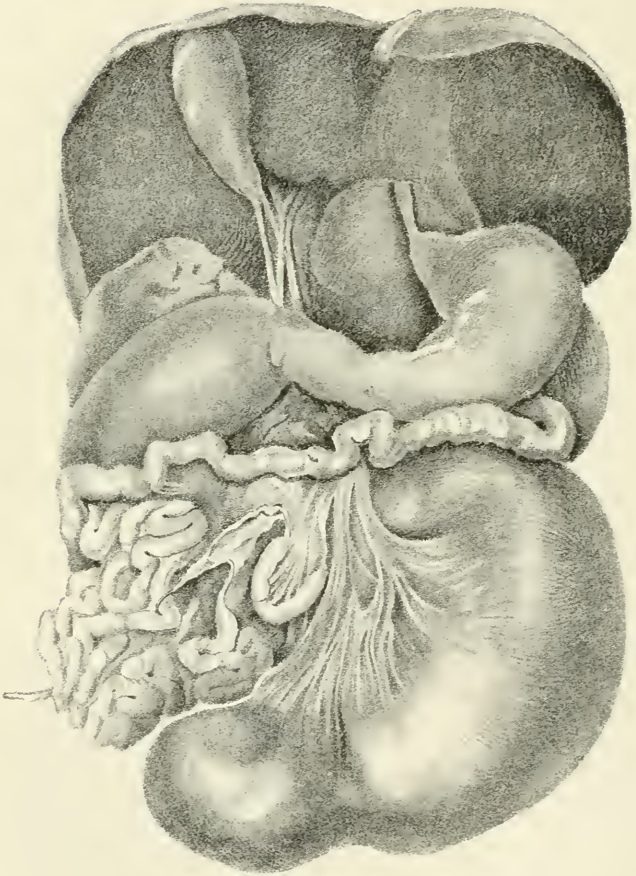
"In their solubility these pigments differ from the bile-pigments, but they give Gmelin's test. Possibly they may consist of bile-pigments which have been for a long period in the bowel and have undergone some change. But it is also possible that they may be pigments produced in some other way. The specimens were so small that it was not possible to make an extended investigation."

Under the microscope, the specimen was found full of micrococci.

*Nov.* 20*th.*—The child died at 7 A.M., aged ten days and four hours.

*Post-mortem Examination.*—Body extremely emaciated; skin slightly but distinctly jaundiced; no obvious cyanosis. Rigor mortis considerable. Dark-green discoloration over the left side of the abdomen.

On opening the abdomen, a large tumour of a purplish-red colour is found to occupy the greater part of the left half of its cavity. This is found to be the distended portion of gut just above the seat of the obliteration. The rest of the bowel is found to be contracted to its fullest extent, and is of a pale yellowish colour. The surface of the peritoneum is smooth and glistening, and, with the exception of the narrow band to be afterwards described, no sign of peritonitis, either old or recent, can be found.



Congenital Obliteration of the Small Intestine.

The liver is somewhat large, and very dark and congested, but otherwise normal to the naked eye.

The gall-bladder is normal in appearance, and is filled with dark bile. The cystic duct seems normal and permeable, but is unusually long. The hepatic and common ducts are also pervious and apparently normal.

The pancreas, spleen, and mesenteric glands seem normal.

The kidneys are congested, showing extremely copious uric acid infarcts in the pyramids.

The *œsophagus* and *stomach* are normal.

*Intestines* (see Plate).—At the very commencement of the duodenum the gut becomes enormously dilated. The dilated portion measures 10 inches in length, and from 1 to 1½ inches in diameter, and is of a dark purplish-brown colour. It comprises the whole of the duodenum, and probably also a few inches of the jejunum. Its lower extremity is an abruptly rounded end; it is perfectly closed, and there is a gap between it and the next portion of bowel. The mesentery belonging to it also comes to an abrupt end, there being a deep fissure between it and that of the succeeding piece of intestine. The bloodvessels in the mesentery are very unusually large. When the distended duodenum is opened, it is found to be full of turbid yellowish-brown fluid—evidently the food swallowed mixed with bile and other secretions.

A short distance from this dilated portion of bowel is a small bit of gut, 1¼ inch in length and ⅙ inch in diameter. It is blind at both ends (which are rounded), and is fixed in the shape of a horse-shoe by a little tongue-like flap of mesentery.

When the mesentery is followed to the right, its free margin is found to be thickened in places by what appear to be fragmentary remains of obliterated bowel, and it is prolonged into a peaked flap lying horizontally (see Plate). From the point of this flap a small, rounded, fibrous band passes in among the neighbouring coils of intestine, and after encircling the mesenteric attachment of a large portion of the bowel, is fixed by a fan-shaped end into the middle of the upper surface of the mesentery of a coil of jejunum about 7 or 8 inches below the lowest point of obliteration. This fibrous band is 1 inch in length, it is very dense in texture, and resembles fine silkworm gut in size and appearance.

The small intestine becomes pervious again about 2½ inches below the horse-shoe shaped fragment. During the rest of its course it varies in diameter from ⅛ to ⅙ inch. In one or two situations the lumen is seen to be occupied by small masses of green matter; elsewhere it seems quite empty.

The large intestine is similarly contracted, measuring only about ¼ inch in diameter, and is in a similarly empty state.

*Thorax.*—The lungs show a little collapse at both bases, but are otherwise normal. Thymus of medium size; pleuræ and pericardium normal; heart normal, all the valves healthy and the septa complete, with the exception of a small valvular opening in the fossa ovalis (posteriorly); ductus arteriosus patent, admitting a probe the size of a No. 1 catheter.

*Remarks.*—The main points of interest in this case seem to be—(1) the nature of the green fæcal matter passed on the tenth day, and (2) the pathology and etiology of the obliteration of the bowel.

1. *The Nature of the Green Fæcal Matter.*—As we see from Dr Noël Paton's report, the analysis which was possible of the small quantity submitted to him did not settle this question. The fact of a faint play of colours with nitroso-nitric acid being observed is the only point in favour of the green colour being due to bile-pigment. On the other hand, the other reactions were quite different from those of ordinary meconium.[1] Dr Paton suggests that possibly the length of time the matter had been in the bowel might account for these differences, but it cannot have been any longer there than ordinary meconium usually is.

We get more light, however, from the clinical facts. The main *bulk* of normal meconium is made up of matters derived from the vernix caseosa which the infant has swallowed *in utero* along with liquor amnii. In this case these matters would be arrested by the obliteration. This accounts for there being, at birth, not more than 2½ drachms of fæcal matter in the lower stretches of this child's bowel, instead of about 2½ oz., as is normally the case.

In a normal new-born child's bowel, the nearer the anus the darker is the colour of the contents. Consequently the first motions are the darkest of all, and those passed later become gradually paler, until about the third day they have acquired the characteristics of ordinary fæces.

In this child, the first two motions were absolutely devoid of any green or yellow tinge; indeed, no coloured motion was passed till the tenth day, after numerous enemata. Were the green colour of the last motion due to bile-pigment which had passed through the intestine before its lumen was interfered with, how could the motions passed during the first ten days possibly have escaped colouring?

The above facts seem sufficient to prove that the green colour was not caused by bile-pigment; and we are therefore forced to the conclusion that the micro-organisms contained in the discharge must be held responsible for it.

2. *Pathology and Etiology of the Lesion of the Bowel.*—There can be little doubt that the obliteration of the lumen of the bowel in this case was secondary to, and caused by the action of the narrow fibrous band described above.

It seems a recognised fact that such bands are the remains of peritonitic adhesions, the shape of which has been altered by prolonged traction.[1] We must therefore suppose that at some (probably early) period of intra-uterine life there had existed a patch of peritonitis, which caused adhesion of a coil of jejunum to a neighbouring piece of mesentery, and that, as the intervening gut elongated in the process of development, these parts were pulled asunder. In this way elongation of the adhesion occurred and kinking, followed by eventual obliteration and partial disappearance of the implicated bowel. As to the isolated horse-shoe-shaped fragment, its form and that of its mesentery suggest the probability that it is the remains of a volvulus or of a loop of gut which had at one time been caught and constricted by the fibrous band.

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[1] Zweifel, *Arch. f. Gynæcol.*, vii. p. 474, 1875.

The question naturally arises—Had the ovariotomy anything to do with causing this peritonitis? On *à priori* grounds, and looking at the probable date of the occurrence of the latter, it would seem quite possible that it may have had. On the other hand, however, ovariotomy is frequently performed during pregnancy, and yet after considerable search I have not been able to find a single case recorded in which any malformation of or injury to the child resulted. I have also asked a number of experienced ovariotomists, and find that none of them have had any experience of a child born soon after an ovariotomy having suffered at all from the operation. It is therefore quite probable that the occurrence of the peritonitis about the same time as the operation is merely a matter of coincidence.

# Part Second.

## REVIEWS.

*Leprosy*. By George Thin, M.D. London: Percival & Co.: 1891.

Recent events have awakened that interest in leprosy which had slumbered for a time, a circumstance not unlikely to happen with respect to a disease seldom seen in Britain even by medical men connected with large hospitals, and the dread of which, so potent an element in its extinction, had long since died away. A concise work on the subject was needed,—one which, written by a pen conversant with the topic, could place the newest facts in relation to it before the professional eye. For, except the short chapters devoted to its consideration in dissertations on general medicine, or in those dealing more particularly with diseases of the skin, there had not appeared in the English language any treatise discussing it as a whole, with the exception of that of Dr Hillis in 1881, since the discovery of the bacillus so closely associated with it. Dr Thin has succeeded in composing a volume in which the data available will be found not only well sifted and arranged, but one which is pleasantly written, and can be perused with profit and advantage. The author commences his task with a sketch of the history of leprosy, a theme which has in all time exercised a peculiar fascination on the mind; yet, as he well remarks, "the capacity to observe with sufficient accuracy, in order to distinguish and classify diseases, has been of slow growth, and may be almost entirely absent in conditions of society in which a relatively high degree of civilisation prevails." Hence we must not expect too much from a study of the references to leprosy in ancient or even early modern writings. Among the Jewish nation there are distinct evidences of its prevalence from the remotest times, the idea being that they acquired it during their sojourn in Egypt. It is perhaps more curious than profitable to inquire whether the disease from which Job suffered was or was not leprosy; Dr Thin seems to hold that probabilities are in favour of its having been so. While touching on the historical associations of leprosy, it may not be out of place to remind the readers of this Journal that two of the most important contributions to the subject, the *Antiquarian Notices of Leprosy and Leper Hospitals in Scotland and England*, by the late Sir James Y. Simpson, and *Leprosy*, by Dr Munro of Manchester, first saw the light in its pages.

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[1] Treves, *Intestinal Obstruction*, 1884, p. 5.

Of more practical worth is the consideration of the present geographical distribution of leprosy, and the causes which have apparently led to its spread or occasioned its extinction. Of those, human intercourse with infected countries is the main factor in the progressive advance of the disease, while isolation holds a chief place in causing its disappearance. That, however, there are other elements at work than mere segregation would appear probable from several circumstances. In Iceland no particular measures of this nature have been employed, yet the disease has there steadily declined and all but died out. Much the same may probably be said for Sweden. In western Europe, at least, it vanished pretty much in the same order as that in which it invaded the district. It would seem as if the country in which it was once prevalent did not now offer those conditions under which it could again take root and flourish. Still of the indefinite persistence of this immunity one must not be too sure. Von Bergmann has quite recently shown that leprosy which had almost disappeared from Riga and Livonia for centuries is again reassuming such proportions as to cause some anxiety in the adjoining parts of Germany, several lepers having been lately admitted into the Konigsberg Hospital. It is possible, therefore, that the conditions under which leprosy spreads may be reproduced throughout tracts of country long recognised as free from the scourge; yet so far the recorded instances of leprosy having been communicated to a native of these islands, who had never himself been abroad, do not exceed two.

Dr Thin gives a clear account of the types of leprosy which have long been recognised and commonly accepted, and points out that if the organism associated with it can find its habitat and develop in the corium, we have tubercular leprosy as the result. If it cannot obtain a footing in that structure, but can live in the nerves of the extremities and face, nerve leprosy is produced.

Undoubtedly the most interesting point in connexion with leprosy is the bacillus found universally and invariably as its concomitant. The immense numbers in which the parasite is present gives the fullest support to the view that on it really depends the phenomena of the disease. On this Dr Thin expresses himself most definitely when he says, "That the pathology of leprosy simply expresses the kind and amount of destruction produced by the direct action of the bacilli in certain parts of the body, more particularly in the cutis and mucous membranes, and on the tropho-neurotic changes consequent on the destruction of nerves by the special elective affinity of this organism for nerve trunks. To these changes may probably be added, in the second rank, certain secondary processes of degeneration produced by the wasting effects of the disease in its later stages, and certain erythemas, probably produced by the action on bloodvessels of a poison set free by the growth of the bacillus."

The resemblance between the tubercle bacillus and that of leprosy has been often commented on; the differences which exist between them are perhaps more important; these will be found formulated in the text, and illustrated in reproductions from photographs by Mr Andrew Pringle. From these latter Dr Thin reasons, and endeavours to show that the bacillus is contained within cells—nay, in opposition to Unna, he goes further in asserting that he cannot satisfy himself that it can live and multiply outside them.

Closely related to the parasitic origin of leprosy is the question of its contagiousness, and on this point opinions have fluctuated. The prolonged and undefined incubation period is a barrier in the way of accurate observations, while the circumstance that so many exposed to the chances of contracting it escape, has been used as an argument against its communicability. Bearing these in mind, till we know exactly the manner in which the contagion is conveyed, there must always be a difficulty in explaining the presence of the disease in particular cases. It is really only in countries where it is not endemic that proof of communicability is undeniable.

Dr Thin has collected a series of instances which lend more or less direct support to its contagiousness, and avows that he holds the belief that the evidence is conclusive as to its contagious nature. In proportion as the opinion gains ground that such is so, does the view that hereditary transmission plays a prominent part in its diffusion become less likely. There are statements in the chapter which deals with heredity which, when compared with others in the volume, seem contradictory. Thus Dr Thin says that as leprosy is a parasitic disease, it cannot be considered hereditary. And further, "In a disease which is parasitic, it is conceivable that the parasite might be transmitted to the fœtus *in utero;* but there is no evidence whatever that this has been the case in leprosy. Syphilis is a hereditary disease, and syphilitic children are born into the world already diseased, but children are not born leprous." Yet at page 132 two apparently well-authenticated cases of congenital leprosy are quoted. Such are indeed very exceptional, as all authors agree that leprosy is seldom seen during the first years of life; still if any congenital instances are admitted, heredity can scarcely be *wholly* excluded as a factor in the transmission of leprosy. Data are, however, against its being a material one; it is probably very far inferior in this respect to contagion. As Dr Thin well observes, "With the establishment of the contagiousness of the disease heredity is no longer necessary even as a hypothesis."

With respect to the etiology of leprosy, the fish theory of Mr Hutchinson, though possibly in its entirety untenable, is disposed of with scant courtesy, when one considers the eminence of the chief modern exponent of this view, and the many arguments he has adduced in support of it. Taken as a whole, the proof that the bacillus is the cause of leprosy is not yet complete, but must be looked on as circumstantial, though as such amounting almost to certainty.

The rôle of vaccination in relation to leprosy takes up a chapter, and the facts which bear on this are fully and fairly stated. There would appear to be something in favour of the idea that it may be occasionally spread by this means, as possibly by means of the acarus scabiei. Since leprosy is so rare in very young children, the practice of infant vaccination affords a great safeguard against its conveyance by vaccine lymph.

The diagnosis of leprosy is not such an easy matter in all cases as is generally supposed. This perhaps applies more particularly to nerve leprosy, but even the tubercular form may be, and has been mistaken at an early stage. Syphilis, lupus, leucoderma, and scleroderma may all resemble leprosy in one or other of its forms, while Morrow and others have directed attention to the similarity exhibited by some cases of syringomyelia.

The treatment of leprosy cannot be regarded as hopeful; still there are a number of those treated at an early stage who seem to have recovered mainly under the influence of cleanliness and good food, occasionally of stimulants judiciously administered, and change of climate, though there are some local and some constitutional remedies which appear to exert a beneficial influence.

Prophylaxis is carefully handled, and the words in which Dr

Thin concludes this excellent work are weighty and important. "It is certain," he says, "that if medicines can do little for the unfortunate leper, medical knowledge in its widest sense can show peoples and governments how, in leper countries, healthy persons may escape the disease."

The illustrations, besides those of the bacilli of leprosy and tubercle, consist of two photographs of tubercular and nerve leprosy respectively; though good, they are hardly sufficiently representative of the phases of this hideous disease.

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*A Manual of Hypodermatic Medication: the Treatment of Disease by the Hypodermatic or Subcutaneous Method.* By ROBERTS BARTHOLOW, A.M., M.D., LL.D., Emeritus Professor of Materia Medica, General Therapeutics, and Hygiene in the Jefferson Medical College of Philadelphia; Honorary Fellow of the Royal Medical Society of Edinburgh, etc., etc. Fifth Edition. Revised and Enlarged. Philadelphia: J. B. Lippincott Company: 1891.

THIS new edition of a well-known work by a well-known author fully bears out the promise of the earlier issues. The book has been enlarged and improved in every way, and we cannot speak too highly either of the get-up or of the material contained in it. Thoroughly up to date, we find in it directions as to the dosage and mode of use of many of the new drugs, of which the general practitioner has hardly had time to learn the names, far less give hypodermically—we beg pardon—hypodermatically. The author, who has been assisted in this edition by his son, has shown a wise discretion in leaving the Koch question severely alone, and in refusing to dogmatize or speculate on a subject over which so many have burnt their fingers. Brown-Séquard's fluid, however, comes in for some criticism, rather favourable than otherwise. It would be presumptuous to say more about such a monument of learning and research as this; it merits nothing but praise.

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*The Pathology and Prevention of Influenza.* By JULIUS ALTHAUS, M.D., M.R.C.P. Lond., Senior Physician to the Hospital for Epilepsy and Paralysis, Regent's Park. London: Longmans & Co., Paternoster Row: 1892.

"I'M a devil, I'm a devil," as Barnaby's raven Grip said after pulling the corks of innumerable (medicine) bottles. Remembering this and the likeness of the disease to the attributes of this ideal personage, Dr Althaus throughout his paper calls influenza by the short, and, as he says, truly English, though scarcely euphonious name of Grip. He speaks of the "clinical symptoms of the feverish attack of grip," of the rise and fall of *grippo-toxine* in the blood, and of its antagonist *anti-grippo-toxine.* Why does he not keep to his pure English, and call it the toxine of grip? But these are by the way, and the essay itself is well reasoned out, and the pathology of the disease carefully studied, even though the remedy proposed be the somewhat heroic proposal to *revaccinate the whole population* with animal lymph before the next attack of influenza, on the supposition that vaccination has prevented the German soldiers and the young in most nations from acquiring the disease.

Some really interesting facts are chronicled in the book, one of which is worth noting. The pupils at the Deaf and Dumb Institution in Copenhagen had been regularly weighed daily for seven years, and in 1889 the annual rise in weight, usually present during the months of November and December, did not occur, the very time during which influenza raged in the Danish capital. None of the children had had the malady, though six of the teachers were ill with it. The author ascribes the diminution in weight to *a chronic infection of the nervous system with the grippo-toxine,* due to, presumably, recent vaccination preventing the more acute forms of the epidemic.

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*A Handbook of the Theory and Practice of Medicine.* By FREDERICK T. ROBERTS, M.D., B.Sc., F.R.C.P., Professor of Materia Medica and Therapeutics and of Clinical Medicine at University College; Physician to University College Hospital, etc., etc. Eighth Edition. London: H. K. Lewis: 1890.

THIS work continues to hold its place as a popular text-book on Medicine, and is so well known already, that little need be said about a new edition. The clinical and therapeutic aspects of the different subjects are well treated, and are brought up to date by adequate revision and judicious additions. We wish, however, that the author or the publisher had seen fit to supply some more finely executed illustrations than the somewhat coarse woodcuts which sparsely decorate the pages. Surely now that the art of illustrating books has reached so high a pitch, a volume with so good a reputation as this one has might have been honoured with more modern plates. The author has also, we are sorry to see, rather neglected the later chemical tests as a means of accurate diagnosis, especially with regard to the urine and stomach. The fallacies in the different urine tests are not given nearly enough prominence to.

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*Surgical Diseases of the Ovaries and Fallopian Tubes, including Tubal Pregnancy.* By J. BLAND SUTTON, F.R.C.S., Assistant Surgeon to the Middlesex Hospital; late Hunterian Professor, and Erasmus Wilson Lecturer, Royal College of Surgeons, England. London, Paris, and Melbourne: Cassell & Company, Limited: 1891.

IN this work, as in those which have already proceeded from his pen, the author has successfully gathered together a large number of novel facts, and has grouped and presented them to the reader in a very fresh and attractive way. Dry pathological details become interesting when Dr Bland Sutton regards them in the light of the knowledge of comparative morbid anatomy, and this is especially true of the contents of the volume now before us. Many of the most valuable conclusions with regard to ovarian and tubal pathology which are to be found in the book have been drawn from the conjoint study of the diseased appendages of the adult human subject, of the female fœtus, and of certain of the lower animals (baboon, mare, ewe, mouse, etc.) This is what one would expect from the special direction which the author's investigations have taken; and whilst the fourth section of the book (which deals with the operative treatment of ovarian and tubal disease) is far from uninteresting, it fails to reach the high standard maintained in the parts devoted to pathology.

In the preface, Dr Bland Sutton, after giving it as his opinion that "the literature relating to surgical diseases of the ovaries displays a notorious amount of egoism," goes on to say that "in the present work a different plan has been followed, for, though the book is largely based on personal investigation, full justice is done to the work of other surgeons. This is a method rarely followed by those engaged in that section of surgical craft known by the grandiloquent term—Gynæcology." We do not know whether the author includes such eminently fair and impartial writers as Olshausen in his sweeping denunciation of the makers of books on ovarian disease, and we fail to see much grandiloquence in the term Gynæcology, although we fancy it is not altogether absent from this preface itself. But, taking the high ideal of what a work on Surgical Diseases of the Ovaries and Tubes ought to be, which the author has claimed for his work, we do not think this book is altogether free from some of the faults which have been mentioned above. For instance, in the chapter upon menstruation the author describes at some length his own observations upon the conditions found in Macaque monkeys, but says little or nothing with regard to the pathological investigations into the relations between ovulation and the menstrual flow made recently by many able observers, of which those by Johnston are fresh in our minds. It may be hypercritical to draw attention to such deficiencies, but the high standard which the author has laid down for himself challenges this method of treatment.

Putting the preface on one side, we have nothing but praise for the contents of the book, the chapters on oophoritic, paroophoritic, and parovarian cysts are particularly good, and the author has much that is fresh and interesting to say with regard to the curious tumours known as dermoid ovarian cystomata. The chapter on ovarian tumours in infancy and childhood, and that on ovarian hydrocele, are both full of suggestive and valuable details of interesting specimens. Similar remarks apply to the sections dealing with salpingitis and tubal gestation, subjects upon which more rational views have but recently come to prevail. Taking it as a whole, we have not read a more complete or thorough work upon the surgical diseases of the ovaries and tubes.

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*First Lines in Midwifery: A Guide to Attendance on Natural Labour for Medical Students and Midwives.* By G. ERNEST HERMAN, M.B. (Lond.), F.R.C.P., Obstetric Physician to the London Hospital, and Lecturer on Midwifery, etc. London, Paris, and Melbourne: Cassell & Company, Limited: 1891.

THE scope of this little work on Midwifery is sufficiently well indicated by its title. It is not intended to take the place of standard works on Obstetrics, but is to be read by the medical student attending his first labour cases, and by the midwife qualifying herself for her diploma. The first chapter is devoted to the anatomy of the pelvis and fœtal head, then labour and its mechanism are described rather more in detail than the wants of the average midwife require, and there follows a useful chapter on the management of natural labour. Obstetrical diagnosis, delay in labour, transverse cases, prolapsus funis, and twin cases, are all in turn discussed, and Farabeuf's drawings are used to elucidate the text. The chapter on germs, disease, and antiseptics is of great importance, and might with advantage have been placed near the beginning of the book instead of almost at the end.

Dr Herman has succeeded in producing a book admirably well fitted for the purposes he has had in view, the education of the midwife, and the supplying of the undergraduate with a handy book on obstetrics.

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*Notes on Gynæcological Nursing.* By JOHN BENJAMIN HELLIER, M.D. Lond., M.R.C.S. Eng., University Scholar in Obstetrical Medicine, etc. London: J. & A. Churchill: 1891.

DR HELLIER'S little book may be read with advantage by all nurses training for gynæcological cases. The rules are short and to the point, and the directions for the preparation of the patient, room, bed, etc., in abdominal section cases may safely be followed, although it is well known that gynæcologists differ somewhat in their methods of procedure in such cases.

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*Nerve Prostration and other Functional Diseases of Daily Life.* By ROBSON ROOSE, M.D., LL.D., F.C.S., F.R.C.P.E., Author of "Gout and its Relations to Diseases of the Liver and Kidneys," "Wear and Tear of London Life," etc., etc. Second Edition. London: H. K. Lewis: 1891.

IT is only two years and a half since the first edition of this work saw the light, and now a second edition is issued, so that it is to be supposed that some one reads it, and reading it, approves of it. For our part, we find no more in its 660 pages than an ordinary text-book on Medicine would contain in a fifth of the bulk. In the preface to the first edition the author explained the reason why many inflammatory disorders, such as dyspepsia and diarrhœa, and chronic diseases, as constipation and corpulence, were included under the heading Functional, the structural lesion only being transient. In this edition he has added the toxic neuroses—the acute and chronic poisoning by alcohol, opium, and ether—and in the next will probably add acute pleurisy and pneumonia, which are undoubtedly transitory, and which may not leave any trace behind.

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*My Water-Cure, as tested through more than Thirty Years, and described for the Healing of Diseases and the Preservation of Health.* By SEBASTIAN KNEIPP, Parish Priest of Worishofen (Bavaria). Translated from the 30th German Edition by A. de. F. Edin.: William Blackwood & Sons: 1891.

THIS little book, the outcome of simple faith, combined with marvellous ignorance, describes a method of treatment by cold water and simple diet and regimen which is quite old, and were it ordered by an ordinary medical man who has spent years in trying to know the human frame and to diagnose disease in each patient, would be laughed at as old fashioned and absurd. But being prescribed by a fine fat old priest, who by his own confession knows nothing about anatomy and physiology, or anything else, who orders the patients to count the duration of their baths by saying Paternosters, and who works with infusions of herbs the composition of which is secret, of course a fuss is made, and the little village becomes for the time a pool of Bethesda. Success is secured when a Jew millionaire comes with his cook and secretary, and lives in his private saloon carriage. The dear old father, his baths, packs, domestic remedies, and good advice are all capital, but, alas! that he should have been allowed to write a book in which he can display such boundless ignorance in his theories and explanations of his own excellent results. The translation, which is by a well-known authoress and patient, is admirably done, except for some absurd travesties of medical terms.

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*Psycho-Therapeutics; or, Treatment by Hypnotism and Suggestion.* By C. LLOYD TUCKEY, M.D. Third Edition. London: 1891.

THE rapidity with which this book has reached the third edition shows that it meets a want, and the author is to be congratulated upon the improvements he has been able to make in this edition, notably in additional cases, and in the attempt he has made to deal more fully with the theory of psycho-therapeutics. Dr Lloyd Tuckey gives notes on thirty-three cases he has collected from various Continental authorities, and on twenty-eight of his own. From a perusal of these it will be seen at once what benefit hypnotism can confer, and also where it fails.

### *An Introduction to Chemical Theory.* By ALEXANDER SCOTT, M.A., D.Sc. London and Edinburgh: Adam & Charles Black: 1891.

THIS is a book which deserves a wide circulation. It is divided into eleven chapters as follows:—I. On the Constitution of Matter. II. Atomic Weights. III. Atomic and Molecular Weights. IV. Classification of the Elements. V. Classification of Compounds—Acids, Bases, Salts. VI. Classification of Compounds—Carbon Compounds. VII. Abnormal Vapour Densities and Dissociation. VIII. Physical Properties of Compounds. IX. Thermo-Chemistry. X. Chemical Change. XI. Solution and Electrolysis. To which there is added a good Index.

The book is well written, and gives a vast amount of valuable information in a concise and intelligible style. We wish the book a wide circulation.

### *Therapeutic Notes.* London: "Franz Josef" Co.: 1891.

THIS is a small book of 104 pages, and refers to the use of—I. Natural Mineral Waters; II. Cod Liver Oils; and, III. Iodine and Bromine as Aërial Disinfectants. It contains much valuable information on all these three subjects.

### *A Contribution to the Demography of South Australia.* By T. BORTHWICK, M.D. (Edin.) London: Baillière, Tindall, & Cox: 1891.

THIS monograph is the thesis which Dr Borthwick presented to the University of Edinburgh for the degree of M.D., and it gives a readable and accurate description of the demography of South Australia. The author has been content to give facts and not to theorise, and therefore the book is valuable for reference. The statistics are brought down to December 31, 1889.

### *Annual Report for County of Fife.* By the Medical Officer, T. G. NASMYTH, M.D., D.Sc.

DR NASMYTH, Medical Officer of Health to the County Council of Fife, is to be congratulated on the appearance of his first Annual Report on the health and statistics of the county. Apart altogether from the excellence of the Report, we cannot too highly commend the promptitude with which it has been issued. No doubt, by having postponed its appearance for a month or two, Dr Nasmyth would have been able to go more fully into the statistics of the various districts, and to discuss at greater length the requirements of various areas under his supervision; but it seems to us he has acted very wisely in thus at once putting into the hands of his Council a *resumé* of the work carried out since he assumed office, with a short and concise statement of what he deems to be the sanitary questions of chief importance which the various district Councils must face in the near future. Some idea is thus given of the amount of work and of the responsibilities attaching to the office of County Medical Officer, and nothing will better help to dispel a view frequently urged, when the various sanitary appointments were being made last year, that the office was practically a sinecure, and the duties such as could easily be carried out by a local practitioner in any spare moments he might be able to snatch from the cares of a large general practice. The Report only needs to be glanced at to show how fallacious these views were, and what a large amount of hard and conscientious work Dr Nasmyth has got through during the last eight months of the year. The conditions of the various villages and parishes bear ample testimony to the need of strict sanitary supervision by the officials, and fully justify the legislation which has created throughout Scotland a body of officials whose constant duty it will be to strive to improve the surroundings of the agricultural labouring classes, which have been up till now practically neglected. The Report is a valuable one, and should serve as a useful model for other counties.

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### *The Johns Hopkins Hospital Reports.* Vol. II., No. 6. Baltimore, 1891.

THIS beautifully printed volume contains four papers with the following titles:—1. A Case of Chorea Insaniens, with a contribution to the Germ Theory of Chorea (Henry J. Berkley, M.D.); 2. Acute Angio-Neurotic Œdema (Charles E. Simon, M.D.); 3. Hæmatomyelia (Aug. Hoch, M.D.); 4. A Case of Cerebro-Spinal Syphilis, with an Unusual Lesion in the Spinal Cord (Henry M. Thomas, M.D.)

For the last three of them we have nothing but unqualified praise; they are extremely well written and valuable contributions to the most interesting subjects of which they treat. Dr Berkley's paper is also of value inasmuch as it contains a careful description of the microscopic appearances of the nervous system in the case of a young woman who died during an attack of chorea; but many of his arguments are impossible to agree with, and several of the statements made in support of them are more than questionable.

The distribution of some of the lesions in this case suggested the idea of their having been due to the action of micro-organisms, but a very careful search revealed nothing of this kind, "except for the uncertain discovery of a few scattered cocci in a single hæmorrhagic focus." In spite of this negative evidence, and in spite of the utter absence of clinical proof of infection, Dr Berkley regards chorea as "an infectious disease." He certainly seems to us to have very little to say in support of his opinion. He ignores almost entirely the intimate relation existing between chorea and rheumatism, and does not refer to other elements in the etiology which are usually thought of importance. In fact, his eye is, as it were, accommodated for seeing bacteria only, for the time being; and however close he comes to clinical facts, he passes them unheeded. This involves an attitude of mind which is scarcely a suitable one in which to approach an important pathological problem. Nor can the interests of truth be served by such extraordinary assertions as the following:—"Chorea is the common accompaniment of any number of infectious disorders—scarlet fever, measles, whooping-cough, typhus abdominalis, varicella, pneumonia, diphtheria, influenza, and many others."

In spite of its defects, however, the paper is an interesting one, as giving the results of a thorough post-mortem examination, and as an example of the arguments in favour of the "Germ Theory of Chorea" at the command of an ingenious and undaunted supporter of it.

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*Burdett's Hospital Annual and Year Book of Philanthropy*, 1891–1892. London: The Hospital (Limited), 140 Strand, W.C.

THIS is a most serviceable and exhaustive record of hospital and philanthropic work of the year of which it treats; and in regard to the medical schools, hospitals, and charities throughout the empire it affords a perfect mine of information. Every page bears evidence of the editor's ability and patient endeavour to render the work reliable.

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*Revue Internationale de Bibliographie Médicale, Pharmaceutique et Vétérinaire (Revue mensuelle analytique) publiée avec le concours du Docteur Pierre Budin, Professor agrégé à la Faculté de médecine de Paris, du Docteur Dujardin-Beaumetz, Médecin des Hôpitaux de Paris, etc.* Par le Docteur JULES ROUVIER, Professeur de clinique obstétricale à la Faculté française de médecine de Beyrouth, etc. No. 10. October 1891.

THE first thing that strikes us on looking at this review is the absence of any correspondents or *collaborateurs* in Great Britain. Germany has a few, Spain a good many, Italy the most of any country out of France, while the United States is not neglected. The second is the very bad paper it is printed on, and the slovenly way in which the *sommaire* is inserted. On reading the review itself, we are at once met with distinct evidences of the enormous labour involved in bringing such a work out; the number contains 171 articles, many 50, nearly all over 15 lines in length, on all manner of subjects. With a general index it should prove very useful; without one, it will become one of what a weekly paper recently called "the dreary Saharas of medical literature."

# Part Third.

## MEETINGS OF SOCIETIES.

## MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

### SESSION LXXI.—MEETING IV.

*Wednesday, 20th January* 1892.—Mr JOSEPH BELL, *President, in the Chair.*

### I. ELECTION OF MEMBERS.

Dr Simson C. Fowler, Juniper Green, and Dr Towers Smith, London, were duly elected Members of the Society.

### II. EXHIBITION OF PATIENTS.

*Dr Sloan* showed two cases of EMPYÆMA.

### III. EXHIBITION OF SPECIMEN.

*Professor Struthers* exhibited a specimen of RIDER'S BONE. This preparation, Dr Struthers said, was the one he had shown in London at the Anatomical Society of Great Britain and Ireland in November 1887. He thought it would be interesting to the members of this Society to see a preparation of so rare a condition. A case had been recorded by Mr Birkett (*Guy's Hospital Reports,* 1868), and one by Mr Bryant (*Practice of Surgery*, 4th edition, 1884), in both of which the condition appeared to have had its origin in some rupture in the region of the adductor muscles during violent action on horseback. For this preparation he, Dr Struthers, was indebted to his former pupil, Dr James Allan of Leeds, by whom the dissection as it now stands was made. It was from a man, aged 55. The bone of each side is about 1½ inch in length, ¾ to 1 inch thick, and mostly triangular. Right bone articulated to a projecting platform at the angle of the pubes, by a diarthrodial joint with very irregular surface. This bone was felt to be movable from side to side during life. Left bone immovably attached to the pubes. The muscular attachments are still seen on the left side. Adductor longus tendon directly prolonged from the end of the bone, which is flattened towards the tendon; attached to inner surface, on to the point, the fascia lata; to inner posterior border, fore part of gracilis; to outer side, inner part of pectineus; behind, a large part of adductor brevis. All these muscular attachments are of full size. But, curiously, in regard to the origin of the ossification in this case, the man would seem not to have been a rider. Dr Allan mentions that "he had been a foot soldier for twenty-one years, but I have no note of his having been much on horseback in any capacity."

## IV. Original Communications.

1. *Dr J. W. Ballantyne* read his paper on THE SPINAL COLUMN IN THE INFANT, which will appear in a future number of this Journal.

*The President* said that the paper was an excellent continuation of the admirable series of original work already done by Dr Ballantyne, exhibiting as it did his characteristic determination to take nothing for granted, but work out every detail for himself. Amid his many conclusions, the President believed the fourth one to be of great surgical interest. In it he proves that the fœtal spinal column has no special curves, but will assume any curve according to the direction in which the body is placed. This bears in an interesting manner on the question of mechanical causation of spinal curvature in cases of rickets.

*Dr Ireland*, in answer to an inquiry from the President, said that he rarely had occasion to examine the spinal cords of idiots, but he believed that disease of the brain inducing idiocy was often accompanied by disease of the spinal cord. It was known that in microcephaly the spinal cord was generally smaller than usual as well as the brain. He had hoped that Dr Ballantyne in his instructive paper would have told them something about the lateral curvature to the right described by some anatomists as occurring in the adult, if not in the child, and regarded by some as the cause of right-handedness. He hoped that Dr Ballantyne might examine the question how the vertebræ grew, so that their cavity increased. Was it by absorption on one side and deposit on the other? The cranium was believed to grow by enlargement at the sutures.

*Dr John Thomson* was surprised that Dr Ballantyne should speak of the young infant's occipito-atloid joint as being more readily dislocated than that of adults. He thought that very few adults indeed could, with impunity, subject their necks to what those of many infants had to put up with in their passage into the world, and yet dislocation of the head during birth was fortunately not very common.

*Dr Hughes* asked Dr Ballantyne how he accounted for the diminution in the actual length of the cervical spine as traced in the list showing the lengths at the ages of 7th, 8th, and 9th months? In the 9th month fœtus the cervical spine was actually shorter than in the 7th month. Dr Hughes would like to know whether this was due to a flexed position of the head at the time of freezing.

*Dr Ballantyne*, in reply to certain questions that had been asked, said that he had not found any appreciable difference in the level at which the spinal cord terminated in male as compared with female infants. He had not been able to demonstrate any distinct lateral curve either to right or left in the infant's spine, and did not believe that any such curve then existed, although, of course, it could easily be produced by postural changes. With regard to the flattened character of the articular surfaces in the occipito-atlantoid joint, he believed that this might possibly explain the fatal accidents which sometimes occurred when children were lifted up by the ears, and he thought that if all infants that died during labour were carefully examined, it might be found that dislocation of this joint was not so rare as had been supposed. He had to thank the members who had spoken for their kindly and suggestive criticism.

2. *Dr Sloan* read his paper on an EXTREME CASE OF HYSTERO-CATALEPSY—TRANCES LASTING 58, 30, 24, AND 12 HOURS; INSANITY; RECOVERY—which appears at page 824 of this Journal.

*The President* remarked on the extreme care and accuracy with which this most interesting case had been detailed, and briefly gave the history of a case of catalepsy he had lately seen. A young lady from whom he had excised a cystic tumour of mamma made a good recovery. Some months later he was asked to see her, as she was supposed to be paralyzed and dying. He found her lying on her back, apparently unconscious, with the whole left side of her body in the state of spastic contraction associated with catalepsy. It was apparently absolutely anæsthetic, as deep insertion of pins and other stimuli induced no expression of pain. Having read accounts of the metallo-therapeutic methods of Charcot and Brocq, and being by a lucky accident the possessor of a sovereign, he pressed the sovereign firmly over the ovarian region for a few seconds, and then plunged the needle again into the blanched portion of skin. The patient started up with a yell of pain, and there was no return of catalepsy or anæsthesia.

*Dr Hunter* desired first of all to express his appreciation of the extreme care and marked ability with which Dr Sloan's case had been reported to the Society. He recalled a somewhat similar one, though in a much less degree, where a young lady patient fell asleep during her meals, and remained in a trance-like condition, from which she could with difficulty be roused. Pressure over one or both ovaries was always successful in waking her up. In this colder climate and less excitable people, cases such as those described by Charcot are not frequently encountered, and therefore wide experience of their natural history is not to be expected. Regarding Dr Sloan's patient, they must all agree that he fully exhausted all the ordeals to prove that the case was not one of malingering; and if error was committed at all, it was rather in overdoing than omitting any of the tests which are usually had recourse to in such cases. With such manifest involvement of motor, sensory, and secretory nerve centres, it would be difficult to regard the patient as merely hysterical, whatever that vague term may mean pathologically; and the after-history of the patient went far to confirm this view of the case.

*Dr Taylor* said he had not, nor need any one have, any hesitation in rising at the call of the President, at least to express admiration for the excellent and thorough nature of the paper. Unfortunately, or perhaps fortunately—for such was his real feeling—he had not had any such case under his personal treatment, nor had he had occasion to study it. He thought that probably Dr Sloan from his present viewpoint agreed with some in thinking the case over-diagnosed and certainly over-treated. By the time a man writes a paper on a case his views become considerably enlarged and altered. It was therefore very candid in Dr Sloan to describe these with so much—almost confessional minuteness. Where true candour in these matters was found, it was to be appreciated.

*Dr Gillespie* was doubtful if the case was true catalepsy, the muscles being rigid and with tremors, and he could not agree with Dr Hunter in saying that it probably was not hysteria ; for though under severe tests—which, however, she could know to be tests—she did not respond, under the excitement of a sojourn in an asylum, the right arm, hitherto powerless, became movable, and she could lace her boot. After apomorphia, too, the abdominal muscles acted. He was reminded of a case of catalepsy in a man who was alcoholic, but who had also anæsthesia in the cataleptic parts, and the sort of aphasia often called "barrel organism," in which he answered the first question correctly, but gave the same answer to the next ten or so. Perhaps Dr Sloan's patient was alcoholic. He also related a similar case cured by Mendel in Berlin by the apposition to the part of a magnet.

*Dr Ireland* said that Dr Sloan's case was analogous to the form of insanity generally called *melancholia attonita*, or melancholy with stupor. It did not seem to him to be connected with hysteria, and occurred in men as well as in women. Such diseases, however, had a great variety of symptoms. Probably in this case, along with paralysis of the motor centres, there was remaining a dim and vague consciousness. This was shown by the traces of emotion noticed when she heard them speak of her death. Patients after recovering from trance sometimes recalled that they had felt great distress on hearing those around say that they were dead or dying, although they were at the time powerless to move or to utter a word. The value of the case consisted in the very careful observation of the different symptoms. Improvement in our knowledge of insanity was in great measure dependent upon the studies of physicians who had opportunities of seeing mental derangement in the nascent state. Probably the paralyses of one or other side were dependent upon sudden changes in the distribution of blood to different portions of the brain or to one hemisphere.

*Dr Craig* remarked that, while he had no experience of such cases, yet he admired the admirable and lucid way in which Dr Sloan had narrated this interesting case. He believed with Dr

Hunter and others that there were important changes in the nerve centres, and that this condition was aggravated to some extent by the kidneys ceasing to secrete urine during these attacks. With regard to the use of drugs for overcoming the characteristic muscular rigidity in these cases, he suggested the inhalation of chloroform, one of the most powerful substances known for overcoming muscular rigidity, believing that when pulse and temperature were normal it could not do harm, and in all likelihood would do good.

*Dr Sloan*, in reply, stated that should he ever meet with a similar case again he would feel disposed to try the effects of the remedy so effectually used by the President. It was his opinion from the first that this was no mere case of malingering; but such cases as these were in Scotland extremely rare, and in spite of all the ordeals applied some physicians seemed still to fancy the condition might be simulated. Dr Gillespie had suggested that the case was not one of true catalepsy; but rigidity of a plastic nature associated with fibrillary tremors is characteristic of that disease, and catalepsy seems to be an extreme form of hysteria. The title of the paper, Hystero-Catalepsy, itself explained the view taken of the case. The patient was not alcoholic, though she was of distinctly neuropathic constitution, and her heredity such as is known to exist in similar cases—alcoholism and immorality on both sides. The pathology of catalepsy was quite unknown. There was no paralysis of the motor centres, rather a loss of inhibitory power over the motor centres, or an actual stimulation of them, the muscles during the trance remaining in a state of constant tonicity. Dr Craig thought the arrested function of the kidneys had something to do with the attacks; but the patient was in a condition of absolute trance, and there seemed complete cessation of excretory functions, while the urine when passed was practically normal. Dr Sloan would not feel inclined to try the effects of chloroform in such a case. The effects of the apomorphia were serious enough, and it would be with the greatest hesitation he would try such a powerful remedy again. He begged to thank the Society for their more than kind reception of his paper.

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## OBSTETRICAL SOCIETY OF EDINBURGH.

### SESSION LIII.—MEETING III.

*Wednesday, 13th January* 1892.—Professor A. R. SIMPSON, *President, in the Chair.*

I. *Dr J. Halliday Croom* read his paper on ASTHMA GRAVIDARUM, WITH AN ILLUSTRATIVE CASE, which appears at page 793 of this Journal.

*The President* was very much interested in Dr Croom's communication, and thought the Society were indebted to him for the careful record of a very rare case and the observations he had made in connexion with it. The subject of asthma in connexion with menstrual disturbances was not unknown. For instance, in Sir James Simpson's Clinical Lectures asthma uterinum was discussed in relation to amenorrhœa. But such cases were not of frequent occurrence, and careful records of such cases as Dr Croom's were a valuable addition to our knowledge of the subject. Dr Croom had apparently adopted the idea that the relation between the asthma and the pregnancy was to be found in connexion with the nervous system, and he (the President) did not question the correctness of Dr Croom's explanation in this, or indeed in other cases. The sympathetic relation between the uterus and the lungs and stomach had led Dr Oliver to suggest that the sexual centre in the nervous system was to be found high up in the medulla, close to the respiratory centre and root of the pneumo-gastric nerve. But it was not to be lost sight of that there subsisted another relation between the uterus and the lungs in the condition of the blood, for it had been shown that the amount of carbonic gas exhaled from the lungs in women became increased in all cases of suppression of menstruation. This occurred not only in cases of pathological amenorrhœa, but in the physiological amenorrhœa of pregnancy as well; and the increased activity called for in the lungs during amenorrhœa might have something to do with the occurrence of asthma in such cases.

*Dr Berry Hart* congratulated Dr Halliday Croom on his able clinical paper. The cases of tumour associated with pregnancy in double uteri were extremely rare, and the account all the more valuable. He himself had seen about six cases of fibroid complicating pregnancy; but all the tumours were high up, and gave little special trouble.

*Dr Croom* replied.

II. *Dr Berry Hart* read his paper ON THE ALLEGED GROWTH OF THE PLACENTA IN EXTRA-UTERINE GESTATION AFTER THE DEATH OF THE FŒTUS.

*The President* thought the communication of Dr Hart was of great value in throwing light into a somewhat obscure region of pathology. Dr Hart had already helped to clear up our ideas on some points in connexion with extra-uterine gestation, and these fresh observations would bring us still nearer a complete knowledge of the subject. He (the President) would like to know whether Dr Hart had made any observation as to the relative extent of chorionic area that goes to form placenta in intra- and extra-uterine ova respectively. In the uterus the chorion finds itself in contact with a thick vascular mucosa in which it can find within a limited area sufficient space for placental development. In the Fallopian tube, on the other hand, the mucosa is so thin that the chorion would require to become ingrafted into it over a much more extended surface before the fœtal and maternal blood-vessels could come into sufficient contact to allow of the development of the fœtus. Such wide extent of the placental area would explain the apparently large size of the placenta in cases of extra-uterine pregnancy, the bulk of it being increased in thickness when the sac contracted, and the extravasation and other changes taking place in it which Dr Hart had so well described. This, as Dr Hart had shown, would render unnecessary the conception that any growth of the placenta took place after death of the fœtus. Dr Hart had denied the possibility of any attachment of the placenta to peritoneal surface; but he (the President) was under the impression that in a communication made to this Society some years ago, Prof. Freund had demonstrated this occurrence, and showed that the peritoneal surface underwent a previous preparatory change.

*Dr Croom* had listened to Dr Hart's paper with great pleasure, and he thought that the author had, in the main, sustained his position. *A priori* he thought that reasoning by analogy, after the death of the fœtus, the placenta being no longer of use, it would naturally, instead of increasing, tend to diminish, but as a matter of fact, in two cases of early extra-uterine pregnancy upon which Dr Croom had operated, the preparation had been given to Dr Haultain for investigation, and he had found conditions somewhat similar to those which Dr Hart had so ably described. He thought Dr Hart's was a perfectly tenable position, and believed that he had proved his point.

*Dr Berry Hart* thanked the Fellows for their kind reception of his paper. Dr Simpson thought that the ovum in Fallopian-tube gestation might form all round the tube, and thus be large. This, however, was not the case; and he might say that his own belief at present was, that grafting of the villi took place on connective tissue and not on epithelium. On this point, however, he was preparing, along with Dr Gulland, a special paper.

III. *Dr J. Halliday Croom* read his paper on A SERIES OF CASES ILLUSTRATIVE OF SURGICAL INTERFERENCE WITH FIBROID AND FIBROCYSTIC TUMOURS DURING PREGNANCY, LABOUR, AND THE PUERPERIUM, which will appear in a future number of this Journal.

*Dr Berry Hart* remarked on the rarity of the cases, and the care with which they had been recorded.

IV. *Dr J. W. Ballantyne's* paper on A SERIES OF THIRTEEN CASES OF ALLEGED MATERNAL IMPRESSIONS was held as read. It will appear in a future number of this Journal.

V. *Drs G. Balfour, Marshall,* and *E. H. Alexander* gave in the REPORT OF THE ROYAL MATERNITY HOSPITAL FOR THE QUARTER ENDING 30TH APRIL 1891, which was held as read. It will appear in a future number of this Journal.

## ROYAL MEDICAL SOCIETY.

*Jan.* 22.—Dr Fuller in the Chair. *Dr Orr* read the notes of a case of Acute Chorea following Influenza in a patient who had previously suffered from rheumatic fever. The patient died soon after admission to hospital, and required the continuous administration of anæsthetics. Considerable discussion took place as to the nature of the case.

*Dr Giles* then described a simple form of Gas Regulator which he had constructed for histological purposes and found useful.

*Dr Spurway* read the notes of a case in which the patient suffered from Unilateral Convulsions, which he considered as epileptic in character. Some difference of opinion was expressed as to diagnosis in the discussion which followed, hæmorrhage and embolism being suggested as alternative explanations of the symptoms.

*Dr W. B. Drummond* then read his dissertation on the "Rudimentary Organs in Man in Relation to Disease." After reviewing the change which has taken place in the views of anatomists with regard to these structures in the light of the doctrines of evolution, the writer mentioned a number of the more important pathological conditions connected with rudimentary organs. The paper was a most instructive one, and displayed a lucidity of style and aptness of illustration very creditable to its author. In the discussion which followed various cases of pathological conditions of the rudimentary organs were discussed.

*Jan.* 29.—Dr Miles in the Chair. *Dr A. L. Turner* showed specimens of Subperiosteal Sarcomata affecting the humerus, radius, and tibia respectively. Dr Fuller referred to an interesting case of apparently latent melanotic sarcoma.

*Dr Stodart Walker* read his dissertation on "Cerebral Syphilis." He discussed at some length the various lesions which may occur in the nervous system as the result of syphilis, and the symptoms to which they give rise, also their diagnosis and treatment. The paper gave rise to considerable discussion. Drs Miles, Turner, and Giles spoke of the importance attached by the writer to diagnosis from the results of treatment, and the fallacies to which this might give rise. Mr Keng suggested that the vascularity of gummata might explain why fatty degeneration rarely took place in them, and therefore their greater curability than other deposits.

*Dr T. F. M'Donald* read the notes of a case of toxic symptoms following the administration of Paraldehyde. He also quoted another case he had heard of where similar symptoms were observed. Some discussion followed on the dosage of the drug and the general safety of its use.

*Feb.* 5.—Dr Fitzgerald in the Chair. *Dr J. W. Crerar* gave a communication on the "Characteristic Pulse of Anæmia," in which he stated that the radial pulse of anæmic patients was incompressible when the radial artery alone was compressed, while if pressure was made on the ulnar artery the radial pulse was readily extinguished. This, he explained, was due to a dilatation of the smaller vessels, whereby the pulse-wave was transmitted through the anastomoses to the distal portion of the radial artery. This caused the pulse to give the characteristic features of one of high tension when examined in the usual way, while the condition was in reality one of very low tension.

*Dr Chasseaud* gave a communication on the "Refraction of the Vertebrate Eye," in which he stated that animals were normally hypermetropic and also astigmatic, the meridian of greatest curvature being vertical in carnivora and horizontal in herbivora. These defects were partly overcome by the shape of the pupil in these animals. He also stated that hypermetropia is the usual condition of refraction in uncivilized races of men, myopia being rare in such races.

*Dr Livingstone* read the notes of a case of Primary Cancer of the Lung, which he illustrated with drawings and pathological specimens.

*Feb.* 12.—Dr Fuller in the Chair. *Mr G. A. Fothergill* read his dissertation on "Alcoholic Insanity." He described the various forms of insanity resulting from the abuse of alcohol, and their treatment, illustrating his remarks by numerous reports of clinical cases he had seen. An animated discussion followed on prophylaxis, and the relation of medical men to the social and medicinal uses of alcohol. Dr Vogelsang, a visitor, made some interesting remarks on the use of alcohol in Switzerland.

# Part Fourth.

## PERISCOPE.

### MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Bromoform in Whooping-Cough.—The statistics which we have from time to time published as to the value of bromoform in the treatment of whooping-cough have been extended by the report by Dr Schipper of 149 cases in which this remedy was employed (*Gazette Médicale de Paris*, November 7, 1891). The age of the patients varied between four weeks and eight years. The remedy was given in doses varying from one to five drops, suspended in sweetened water, the quantity varying according to the age of the patient, and administration taking place four times daily. The author states that his results were more favourable in summer than in winter; while the fact that in some instances treatment was prolonged for more than eight weeks shows conclusively that this remedy does not exercise any specific action on whooping-cough. Nevertheless, the author maintains that, administered in the above doses, it is perfectly harmless; that it rapidly diminishes the number and violence of the attacks, while under its influence the duration of the malady is decidedly reduced. After two or three days' treatment vomiting ceases, as well as hæmorrhages from the mouth and nose. Further, the remedy is claimed to prevent complications, such as pneumonia, by the diminution in the congestion of the thoracic organs which is apt to result from the violence of the cough.—*Therapeutic Gazette*, December 1891.

THE TREATMENT OF WHOOPING-COUGH WITH OUABAÏN.—Over a year ago Dr Gemmell reported his experience with the glucoside ouabaïn in the treatment of whooping-cough. This glucoside has a formula of $C_{30}H_{46}O_{12}$, and is obtained by crystallization from a watery extract of the roots of the ouabaïo, a plant nearly related to the *Carissa Schimperi*. Like strophanthus, the juice of the plant is used as an arrow-poison by the Somalis of East Africa. Prior to Dr Gemmell's paper, Dr Percy Wilde had recommended a trial of it in asthma and whooping-cough, probably from having read of the experiments of two Paris physicians, Professor Gley and Professor Arnoud. These gentlemen found that the $\frac{1}{2000}$ grain caused death to a frog by arresting the heart's action. In a dog, $\frac{1}{975}$ grain markedly slowed the respiration without much cardiac disturbance; $\frac{1}{260}$ grain first stimulated, then slowed respiration, till it ultimately ceased completely. Hypodermically it is more powerful than when given by the stomach; $\frac{1}{65}$ grain so introduced is fatal to a man. From the experiments of Dr Gemmell, the standard dose for a child under 5 years is $\frac{1}{1000}$ grain every three hours in solution. This dose usually lessened the number of coughs and whoops. In two cases, however, where the children were much prostrated by the violence of the cough, $\frac{1}{500}$ grain, and latterly $\frac{1}{250}$ grain, was given every three hours. This is equal to about $\frac{1}{32}$ grain daily, which is nearly double the strength of the dose advocated by Professor Gley, who estimates the maximum daily dose for an adult as 1 milligramme ($\frac{1}{65}$). Dr Gemmell, up to the time of writing his article, had treated forty-nine cases; twenty-five patients had been dismissed cured, and four had died (one from diphtheria, one from tubercular meningitis, one from capillary bronchitis, and one from gradual progressive emaciation). The remainder were still under treatment when he wrote. In no case did he notice any ill effects of the drug. From accurate observation, Dr Gemmell concludes that ouabaïn is of marked benefit in all stages of the disease. In the first stage, it cuts short the attack; in the second stage, it reduces the violence and frequency of the cough, and diminishes the number of whoops; and in the third stage, it hastens convalescence. It is interesting to note how little of the alkaloid in each case was required. In one case the whoops ceased after $\frac{1}{7}$ grain had been given. The time during which this was given was six days. In another case, which was accompanied by severe vomiting and bleeding, $\frac{3}{10}$ grain was required, given at intervals of four hours for fifteen days.

In the *New York Medical Journal* for September 25, 1891, Dr J. Lindsay Porteous reports three cases of whooping-cough, two of which occurred in children and one in an adult, in which marked improvement was almost immediately observed after the administration of this drug. To a child of fifteen months of age, Dr Porteous gave $\frac{1}{4000}$ grain in solution every three hours. On the following day the child had only two whoops and less coughing, and at the end of a week was apparently entirely well. For a child of 4 years of age he ordered $\frac{1}{2000}$ grain every four hours, and here also cure was noted at the end of a week. To the adult, a woman of 45 years of age, he ordered $\frac{1}{300}$ grain every three hours, and here also rapid cure is claimed to have taken place. Dr Porteous maintains that the action of ouabaïn is evidently not cumulative. During the administration the pulse, temperature, and respiration are slightly lower. It promotes the action of the skin after three or four days' treatment. The bowels act regularly, and the usual accompanying diarrhœa of whooping-cough is not, as a rule, present during the treatment. It, like strophanthus, increases the flow of urine. The appetite in all the cases was increased. Dr Gemmell likewise noticed this. The toxic effects are considerable slowing of the pulse and respiration, and the latter is the one to be particularly on guard against.—*Therapeutic Gazette*, December 1891.

Ephedra as a Remedy for Rheumatism.—Very recently Dr Betchine, of St Petersburg, has reported in the *Revue de Thérapeutique* his studies upon the anti-rheumatic properties of *Ephedra vulgaris*, or *Ephedra distachya*. The plant is widely distributed over Russia, and has long enjoyed a great reputation among the peasants as an anti-rheumatic and anti-syphilitic remedy. Dr Betchine has employed a decoction of four grammes of the powdered bark and root in twenty grammes of water, the dose of which is a dessert-spoonful every two hours. The remedy appears to be particularly useful in acute articular and muscular rheumatism. In from twenty-four to forty-eight hours the pain is relieved, the temperature is reduced, and the pulse and respiration are quieted. In about eight or ten days the patient may be said to be cured, and the pericarditis that sometimes exists disappears with the other rheumatic manifestations. Chronic rheumatism is not so favourably influenced by the drug, and the author recommends it only in cases accompanied with more or less fever. The remedy possesses laxative, diuretic, and diaphoretic properties, to which its favourable influence upon this disease may be attributed. Professor Nagai of Tokio has isolated the alkaloid ephedrine from *Ephedra vulgaris*

This injected into dogs and cats produces general convulsions, mydriasis, and exophthalmia. It is an efficient mydriatic, but has not yet been put to practical use (*New York Medical Journal*, November 28, 1891).—*Therapeutic Gazette*, January 1892.

Action of Ichthyol.—In the *Gazette Hebdomadaire des Sciences Médicale de Bordeaux*, it is stated that ichthyol proved itself very useful in the treatment of an intense and rebellious pleurodynia when rubbed into the part affected, in the proportion of 20 parts to 100 of vaseline. The pain diminished at once, and the cure was complete in forty-eight hours. Similarly good results were obtained in a case of stiffness from an injury to the shoulder-joint, combining the use of the ichthyol with massage. Ichthyol was also used internally in pills, in the dose of one to three grains, with good effect in several cases suffering from boils (*Revue Internationale de Bibliographie Médicale*, September 1891).—*Therapeutic Gazette*, January 1892.

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## OCCASIONAL PERISCOPE ON DISEASES OF THE THROAT, NOSE, AND EAR.

By R. M'Kenzie Johnston, M.D., F.R.C.S.E., Assistant Surgeon to the Ear and Throat Department, Royal Infirmary, Edinburgh.

Styrone in Chronic Suppuration of the Middle Ear.—Styrone is a compound of styrax and balsam of Peru, and has been mentioned in various therapeutic journals as an efficient antiseptic remedy. It was first used in aural surgery by Chelstoff, and more recently attention is drawn to it in a paper by Dr James Spalding. He finds that it gives satisfactory results in obstinate otorrhœas, but it is specially of value in the treatment of troublesome cases of perforation of Shrapnell's membrane. He uses a 1 to 5 per cent. solution of this substance in alcohol, and teaches his patients to apply it by means of a probe covered with cotton wool, which is passed into the site of the perforation. In other cases the ear is cleansed of all discharge by syringing, and then a few drops of the solution is run into the ear. From his experience of this remedy in the class of cases mentioned, he considers it well worthy of trial in obstinate cases.—*Archiv. Otol.*, July 1891.

Electricity in Chronic Affections of the Middle Ear.—The benefits derived from the use of electricity in various parts of the body are undoubted; but in diseases of the ear it is generally recognised that its effects have been most disappointing. W. E. Baxter, however, claims to have had a number of good results in certain cases of middle ear disease. It is specially in some forms of tinnitus with middle ear catarrh that he is able to record a number of cases where this distressing symptom was relieved and the hearing improved. In applying it, he first fills the ear with warm water, into which he places the aural electrode; the other electrode is held in the patient's hand. He then passes a current of from 5 to

10 milliampères for about five minutes, the direction of the current being reversed two or three times a minute.—*Archiv. Otol.*, July 1891.

THE OTITIS OF INFLUENZA AS OBSERVED IN PARIS IN 1891.—Lœwenberg publishes in this paper an account of the affections of the ear following the influenza epidemic of 1891, and states that these have been neither so numerous nor so severe as after the epidemic of the previous year. He further states that in France generally the ear affections following influenza have been far less severe than in almost any other country, judging by the writings of others. He bases this opinion chiefly on the fact that he has not found it necessary to open the mastoid antrum in any case after influenza, an experience which differs largely from that of specialists in other countries. He also records a peculiar form of perforation which he has not seen figured in any text-books. In shape this perforation is like a pear, and he has found it peculiarly resistent to treatment.—*Annal. de l'oreille, du larynx*, Nov. 1891.

FACIAL SPASM CURED BY INTRA-NASAL TREATMENT.—Spasms of the muscles connected with the facial nerve may be caused by many different conditions, but most frequently they are due to reflex causes. Dr F. Peltesohn thinks that it is of importance to keep in view the possibility of a nasal origin in cases of convulsive tic. He records a case occurring in a strong, healthy young man of 20, who had been much troubled by this condition for six years. The spasms did not cease at night, and his sleep was often interrupted by the jerking of his face. On examining the nose he found, on the affected side, that the inferior meatus was obstructed by a hypertrophic growth on the inferior turbinated body. Cocaine neither reduced the size of this growth, nor did it relieve the spasms. After the removal of the tumour by the galvanic snare, the spasms at once ceased. Peltesohn insists that in such cases irritation of the mucous membrane by means of the probe or the application of cocaine are not reliable methods which can be trusted as aids in diagnosis, for both of these gave negative results when tried upon his patient. The great point to aim at, in forming a diagnosis, is to try to discriminate accurately between cases of reflex and non-reflex origin.—*Berlin Klin. Woch.*, 10th August 1891.

A NEW METHOD OF TREATING DIPHTHERIA.—In a paper read before the Medical Society of Victoria, Australia, Dr C. Smith gives an account of a method of treating diphtheria which, to use his own words, "is new, easy of application, safe, and, with some slight reservations, infallible." The treatment consists in the *continuous* inhalation of the vapour of a mixture composed of carbolic acid, eucalyptus oil, and turpentine, in the proportion of 8 of the last to 1 each of the other ingredients. At the same time the heart is supported by stimulants, digitalis, and sal volatile. The inhalation must not be used with hot water, but must be applied without dilution by means of handkerchiefs dipped in the mixture and hung round the patient. The essential point is that the inhalation must be kept up *continuously*, though it is allowable to vary the proportion of the mixture. However, if used much stronger than as recommended above, it is apt to be depressing. Before we can experience the same confidence in this remedy that the author seems to feel we should like to have some independent evidence of the certainty of its action in cases of diphtheria in this country.—*Practitioner*, December 1891.

LOCAL ANÆSTHESIA WITH THE PHARYNGEAL COCAINE SYRINGE.—Dr Boylan, of Cincinnati, has for some time adopted a method of anæsthetizing the tissue of the vault of the pharynx, for operations in that region, by means of subcutaneous injections of cocaine made with a specially constructed syringe. He does not consider the danger of toxic effects sufficient to prevent the use of cocaine in this manner. While he has seen several cases where constitutional symptoms appeared, they were not worse than the cases he has seen where cocaine was applied by the brush or spray. He finds that 15 minims of a 20 per cent. solution is a perfectly safe quantity to inject, and he has never seen such a quantity to fail in producing satisfactory anæsthesia in five minutes. The chief advantages claimed for this method are—1. It reduces the number of cases where a general anæsthetic would be necessary. 2. The ease and celerity with which it is accomplished. 3. The rapidity and completeness of its effect; and, 4. That no cocaine is swallowed or retained in the nose so as not to assist in producing anæsthesia of the pharynx.—*The Amer. Jour.*, October 10, 1891.

NOTE ON THE TREATMENT OF MYXŒDEMA BY HYPODERMIC INJECTIONS OF AN EXTRACT OF THE THYROID GLAND OF A SHEEP.—The possibility of curing this distressing condition seems to have come within measurable distance, owing largely to the observations and experiments of Victor Horsley, Kocher, Eiselsberg, and others. The first of these suggested that the healthy thyroid gland of a sheep might be grafted into a patient with the hope that the disease would be arrested. Subsequently this was done by Bettencourt and Serrano, with most encouraging results. From a study of this case, Dr George Murray (*Brit. Med. Jour.*, 10th Oct. 1891) was led to think that a like amount of improvement might follow the injection of an extract of the gland instead of transplanting the gland itself. Not long afterwards he had an opportunity of testing his theory upon a well-marked case of myxœdema. The injections were continued at long intervals over a period of three months, with the result that the patient made a most satisfactory recovery. The method of preparing the extract is as follows:—The lobe of the thyroid gland is taken from a newly-killed sheep. It is cut up into small pieces and placed in a test-tube, with 1 cubic centimetre of pure glycerine and 1 ccm. of ·05 solution of carbolic acid. The tube is plugged with wool and allowed to stand for twenty-four hours. After this the mixture is pressed through muslin, and about 50 minims of a turbid pink liquid are obtained, which may be injected by means of a hypodermic syringe in two doses during the course of a week. All the steps of the preparation of this mixture are carried out with due precautions to ensure that the liquid is thoroughly sterilized as well as all the instruments employed.

ARISTOL IN THE TREATMENT OF THE DISEASES OF THE NOSE AND THROAT.—Aristol, a combination of iodine and thymol, possesses some qualities that have attracted the attention of various observers, and it has been tried with good result, specially in cases of ozæna and acute otitis media. The substance is insoluble in glycerine and alcohol, but is very soluble in ether, chloroform, and fatty oils, and differs from many antiseptics in being non-toxic. It has hitherto been used only as an insufflation, but Wendell Phillips of New York (*The American Jour.*, 3rd October 1891) has devised a more satisfactory way of using it by means of the oil spray apparatus in cases of nose and throat disease. Aristol is not soluble in any form of petroleum, but he found that if first dissolved in a little pure almond oil it will remain in solution if this be mixed with petroleum oil. He found that a solution thus made of a strength of 30 or 40 grains to the ounce is suitable for all nasal requirements. Aristol appears to excite a copious secretion from the mucous membrane, and this action as well as its antiseptic quality probably explains its beneficial action in cases of atrophic nasal catarrh.

## SURGICAL PERISCOPE.

By KENNETH M. DOUGLAS, M.D., F.R.C.S. Edin.

ANEURISM OF THE INNOMINATE AND COMMON CAROTID.—M. le Dentu communicated to the Society of Surgery (Paris, October 7, 1891) a case of this nature, where the operation for ligature of subclavian (outside scalenus) and carotid (just below bifurcation) was survived for forty-four days. The patient was a man aged 34. The skin over the tumour was red and a little œdematous; the manubrium, first rib, and clavicle were destroyed. The tumour had existed for two years. After the operation the pulse-rate rose immediately from 90 to 130. The radial pulse never reappeared. After the thirty-fifth day the tumour increased sensibly towards the skin surface, and its rupture was imminent, when the patient succumbed on the forty-fourth day. The cardiac condition noted above resisted morphia and bromide, but yielded to sulphonal.—*Revue de Thérapeutique Méd. Chir.*, Nov. 1891.

VALVULAR OBSTRUCTION AT THE NECK OF THE BLADDER.—Dr Eigenbrodt reports a case of this rare condition. It was diagnosed during life and cured by operative interference. The symptoms were similar to those induced by hypertrophy of the middle lobe of the prostate, but exploration by supra-pubic cystotomy revealed at the posterior edge of the internal urethral orifice a fold of vesical mucous membrane, which opposed the passage of the sound. Its removal completely relieved the symptoms. — *Centralblatt für Chirurgie*, 1891, No. 12, p. 827.

INTRA-VESICAL SURGERY.—Dr Max Nitze enumerates various conditions of the bladder, in which the endoscope may be looked upon as a therapeutic as well as a diagnostic agent. One can, he maintains, practise most varied forms of surgical intervention in the bladder under the control of the eye, and with even more security than in other organs, such as the larynx, etc. Thus, caustic and galvano-caustic applications can be made to ulcers or ulcerated tumours; polyps can be taken away by wire ecraseur, or small recent tumours by forceps of various shapes; and small calculi or portions of larger stones may be easily extracted from the bladder. The instruments adapted to these various requirements are naturally very diverse. Dr Nitze in this paper describes his polypus forceps, which are fixed on the end of a cylindrical tube, which slides upon that of the endoscope, its forward and backward movements closing and opening the forceps blades. The instrument is introduced with the blades embracing closely the point of the endoscope, and when it has passed into the bladder, by withdrawing the outer tube, one raises the blades off the "window" of the instrument, and can clearly see and regulate their movements. After cutting away the polyps by appropriate movements of the outer tube, the blades are replaced on the point of the endoscope, and the whole instrument withdrawn. The mechanism of the other instruments is on the same principle, but they are not described in the paper. For recurrent growths Dr Nitze believes these instruments will prove most useful, "the extirpation of a polypus of the bladder being in such conditions no more dangerous than similar treatment of a nasal polyp. The instruments are constructed so as to permit of thorough cleansing and disinfection.—*Ann. de Malad. Genito-Urinaires*, Dec. 1891.

HYDROCELE FLUID IN TUBERCULAR DISEASE OF THE TESTICLE.—M. Tuffier has proved that generally the fluid filling the *tunica vaginalis* in cases of strumous testicle is capable of inoculation, and by inoculation, of causing strumous disease, although the bacteriological examination of the fluid gives negative results. From his experience he draws the following conclusions:—1st, That in cases where the diagnosis is doubtful experimental inoculation will remove all doubt; 2nd, Evacuation of the liquid by puncture and injection of a germicide appears to be indicated in this class of cases. Where treatment must be radical, the *tunica vaginalis* should be taken away with the testicle.—*Ibid.*, Oct. 1891.

ANTIPYRIN AS A HÆMOSTATIC.—M. Perier draws attention to the hæmostatic power of antipyrin dissolved in its own weight of water. In such operations as staphylorraphy, laryngotomy, etc., he used it by pressing on the wound a pledget of wadding soaked in the solution. It caused all bleeding to cease, and did not hinder primary union.—*Mercredi Medical*, June 17, 1892.

Successful Pylorectomy and Gastro-Enterostomy for Carcinoma of Pylorus.—Mr Bowreman Jesset reports this case as the first of the kind published in this country. The operation took place on 4th August 1891. The tumour, being free from all surrounding organs, was drawn out of the abdominal incision, which was 3 inches long, and removed. The cut edges of the stomach were stitched first by continuous catgut suture, and secondly by nine quilt sutures; the stomach was then returned, and the tumour severed from the duodenum so as to leave as much as possible of that organ. The divided end of the duodenum was treated similarly to the stomach, and returned to the abdomen; gastro-enterostomy (by bone plates) was then performed between the stomach and the origin (as nearly as possible) of the jejunum; the stomach was opened parallel to and about an inch from the greater curvature, and about 2 inches from the divided end. The portion of stomach removed measured about 6 inches in length, and 4 inches from above downwards at the gastric end. The patient did well, a little peptonized milk and water being given by the mouth on the day after operation; this was, however, discontinued on the third day for twenty-four hours on account of epigastric pains. A week after operation, beef-tea, jelly, and mutton broth were given. About six weeks after, the patient was allowed out, and made uninterrupted progress. The silk ligatures which retained the "bone plates" at the point of anastomosis were passed per rectum sixteen days after the operation.—*Lancet*, Oct. 24, 1891.

Primary Carcinoma of Urethra.—Dr Witzenhausen reports two cases of this very rare affection observed in the Heidelberg clinique. In them, as in other similar cases, the nature of the disease was only recognised after the removal and microscopic examination of the growth.—*Centralblatt f. Chirurgie*, 1891, No. 35, p. 685.

Prostatectomy for Senile Prostatic Enlargement. — Mr Tobin referred to this subject in the Royal Academy of Medicine of Ireland (Nov. 13th, 1891). The method of operating which he had successfully practised he described as follows:—The bladder having been explored by the fingers through a small supra-pubic incision, and the case being one suitable for operation, a wire doubled and bent to a suitable curve is passed through the urethra into the bladder. A straight sound, arranged to receive the wire and act as an ecraseur, is then slipped up along it; but its point, instead of being passed into the bladder, is made to impinge against the urethral obstruction. Next, the double wire lying in the bladder is opened into a loop and slipped over the enlarged lobe, and is kept embedded round its base by means of two fingers passed through the abdominal incision. While this wire is being made, by traction on it, to cut its way through the part it encircles, the inserted fingers, helped by the point of the catheter, pressed against the spot it is desired to reach, regulate its direction. The following are the advantages of this operation—1. As much of the gland as interferes with the escape of urine is removed, and no more. 2. Such portion of it is removed in a satisfactory manner, for the wire starts from the point where the finger defines the obstruction on one side, and cuts up to the point where the instrument does so on the other. 3. A smooth surface, sloping into the urethra, is left instead of the more or less rough one, that must result from taking away the gland piecemeal with a forceps. 4. There is very little hæmorrhage. No brilliant results are to be expected from any operation, and one should be undertaken only as a last resource. When dealing with youth we may talk of a cure; when treating the aged we may consider ourselves lucky if we succeed in making them a little better.—*Med. Press and Circular*, Dec. 2, 1891.

TRAUMATIC EPILEPSY.—Dr Keene narrates two cases of trephining for this condition; in one of them diseased brain substance was taken away, and on June 11th, 1891, eight months after operation, there had been no attacks; the right hand, the centre for which had been interfered with, had movements of complete range, though lacking power. In his remarks on the cases, Dr Keene says that in brain injuries immediate interference would prevent deplorable consequences; that not alone soft parts and *bone* should be properly trimmed, but that lacerated brain substance should be removed, as experience seems to show that the scar tissue resulting from laceration is a fertile source of trouble, far more so than the scar resulting from a clean incision. Even if sound tissue be needlessly removed, the paralysis resulting will only prove temporary.—*American Journal of the Medical Sciences*, Sept. 1891.

FRACTURE OF THE TWELFTH DORSAL VERTEBRA FOLLOWED BY INJURY TO NERVE SUPPLY OF THE BOWEL IN THE REGION OF THE ILEO-COLON.—Dr Eskridge, of Denver, Colorado, records a case of this nature. The vertebra was found by examination to be crushed, and the twelfth sympathetic ganglion on either side was apparently disorganised and surrounded by infiltrated blood and inflammatory products. The state of the bowel was most interesting: there was no peritoneal inflammation observable; the lower part of the ileum and first part of the colon were enormously distended and almost black in colour; this distended portion (11 inches long) was abruptly shut off from the rest of the gut at either end by swollen mucous membrane, and contained a little over two quarts of dark semi-fluid blood; the coats of the bowel were almost black, soft, and infiltrated by dark fluid blood. Dr Eskridge regards this hæmorrhage as the immediate cause of death, and in the absence of any other apparent cause, ascribes the hæmorrhage to muscular and vaso-motor paralysis of the gut from the nerve injury, together with the irritation set up by the contents of the bowel and the disturbance brought on by vomiting. The clinical features of the case were, vomiting after eating freely of boiled cabbage (contrary to orders), followed by gastric and abdominal pains, collapse, abdominal distension, and signs of intestinal obstruction.—*Medical News*, Oct. 10th, 1891.

# Part Fifth.

## MEDICAL NEWS.

Royal Colleges of Physicians and Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow.—The following candidates passed their Final Examination for the Triple Qualification in Medicine and Surgery at the sittings held in January and February 1892, and were admitted L.R.C.P. & S. Ed., and L.F.P. & S. Glasg. :—James Arthur Ross, Ontario ; George Hewlett Stanhope Hillyar, Devon ; Lucie Whitby, Warwickshire ; Sydney Firth, Yorkshire ; Peter Wright M'Gregor, Glasgow ; Francis Weatherdon Toms, London ; Robert Edward Roberts, North Wales ; Anne Augusta Wilson, Baltimore, U.S.A. ; Elizabeth May Harris, Wiltshire ; Frank Pickering Bassett, Dublin ; Alfred Kay Jarratt, Yorkshire ; Sydney Wilson Thompstone, Lancashire ; Thomas Leonard Johnston, Derbyshire ; Robert Maxwell Cooper, Canada ; Robert Martin, County Down ; Edward Hawkesworth Hackett, Cork ; Robert Day Stokes, Woolwich ; Bernadotte Harris, India ; William Ellsworth Inksetter, Ontario ; Hubert Douglas Hamilton, New York ; James Ross, Elgin ; Joseph Ledger Smith, County Limerick ; Patrick Quaid Ambrose, County Limerick ; Robert Thomas Davies, Cerrig-y-Druidion ; William Cornelius Rainsbury, Queenstown ; Martha Georgina Isabella Cadell, Carriden ; George Munro Stocks, Edinburgh ; Alexander James Millar, Newmains ; Charles James Johnston, County Tyrone ; Samuel N'Nair, County Antrim ; Alfred Leigh Chignell, Kent ; Horace Allonby Smit, Cape Colony ; Richard Holmes, Westmeath ; Thomas Matthias Bassano, London ; Alexander White Robertson, Edinburgh ; Harry Athill Cruttwell. Bath ; John Cumming, Banffshire ; Patrick Aloysius Conran, Cork ; Hugh Webster, York ; William Henry Stephenson, Whitby ; Ernest Frederic William Moon, County Tyrone ; George Benjamin Mitchell, Brechin ; William Leahy, County Kerry ; William James Baird, Londonderry ; Robert Muschamp, Guiseley ; Richard Henry Griffith, Castellmarch ; Bernard Keane, Sheerness ; George Gresswell, Lincolnshire ; Allan Godwin Jackson, Melbourne ; Henry Frederick John Graves, Birmingham ; William Grant Sellar, Edinburgh ; Joseph John Moynihan, Cork ; Owen Joseph Caregan, Liverpool ; Randal MacCarthy, Paisley ; George Harrison Jenkins, Worcester ; George Roy Fortune, Glasgow ; and Harry Arthur Leonard Howell, Kent.

The following candidates passed in the respective divisions:—*In Medicine and Therapeutics*—Frank Augustus Godfrey, James Wilkie, and William Samuel Howard. *In Surgery and Surgical Anatomy*—Charles Allan Brough (with honours), and Robert M'Coull. *In Midwifery and Medical Jurisprudence*—Pierre Isaac de Villiers. *In Surgery and Surgical Anatomy, Midwifery and Medical Jurisprudence*—George Hepworth.

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about $180, will be made on July 14, 1892. Essays intended for competition may be upon any subject in Medicine, and must be received by the Secretary of the College on or before May 1, 1892. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College.

BRITISH MEDICAL SERVICE.—List of Surgeons on Probation of the Medical Staff of the British Army who were successful at both the London and Netley Examinations on 1st February 1892:—

| No. | Name. | Combined Marks. | No. | Name. | Combined Marks. |
|---|---|---|---|---|---|
| 1. | Pilcher, E. M. | 6094 | 11. | Mitchell, L. A., | 4549 |
| 2. | Johnson, H. P., | 5421 | 12. | Fleming, C. C., | 4533 |
| 3. | Beyts, W. G., | 5219 | 13. | Hennessy, J., | 4506 |
| 4. | Stalkartt, H. A., | 4883 | 14. | Martin, C. B., | 4501 |
| 5. | Dunn, H. N., | 4832 | 15. | Buchanan, G. J., | 4395 |
| 6. | Withers, S. H., | 4794 | 16. | Lawson, C. B., | 4366 |
| 7. | Morphew, E. M., | 4744 | 17. | Hughes, G. E., | 4344 |
| 8. | Anderson, E. C., | 4648 | 18. | Kelly, J. F. M., | 4337 |
| 9. | Tyacke, N., | 4619 | 19. | Crawford, G. S., | 4286 |
| 10. | Holt, R. H. E. G., | 4562 | 20. | Alexander, J. D.., | 4260 |

LIST of successful Candidates for Commissions in the Medical Staff of Her Majesty's Army, at the recent Examination in London.

| Order of Merit. | Names. | Number of Marks. | Order of Merit. | Names. | Number of Marks. |
|---|---|---|---|---|---|
| 1. | Hinge, H. A., | 3160 | 14. | Jones, T. P., | 2830 |
| 2. | M'Dermott, T., | 3160 | 15. | Marder, N., | 2810 |
| 3. | Bray, H. A., | 3140 | 16. | Thurston, H. S., | 2810 |
| 4. | Hodgens, C. O'C., | 3095 | 17. | Lewis, R. C., | 2795 |
| 5. | Slayter, E. W., | 3070 | 18. | More, L. P., | 2790 |
| 6. | Erskine, W. D., | 3020 | 19. | Faichnie, F., | 2760 |
| 7. | Tyrrell, A. F., | 2945 | 20. | Walker, G. S., | 2730 |
| 8. | M'Naught, J. G., | 2940 | 21. | O'Reilly, W. H., | 2710 |
| 9. | Smyth, W. J., | 2940 | 22. | Mansfield, G. S., | 2705 |
| 10. | Chambers, J. G., | 2910 | 23. | Ryall, W. P., | 2695 |
| 11. | Austin, R. F. E., | 2900 | 24. | Thompson, A. G., | 2670 |
| 12. | Moore, G. A., | 2900 | 25. | Read, H. W. K., | 2665 |
| 13. | Condon, E. H., | 2870 | | | |

CONGRÈS FRANÇAIS DE CHIRURGIE, 6$^{e}$ Session, 1892.—La 6$^{e}$ session du Congrès français de Chirurgie s'ouvrira à Paris, à la Faculté de Médecine, le Lundi 18 Avril 1892, sous la présidence de M. le Professeur Demons, de Bordeaux. La première séance (consacrée aux questions diverses) aura lieu à neuf heures du matin (grand amphithéâtre de l'École de Médecine). La Séance solennelle d'inauguration du Congrès aura lieu à deux heures. Trois questions ont été mises à l'ordre du jour de la Session et seront introduites par des rapporteurs spéciaux dans les séances du soir. 1. Pathogénie et traitement des gangrènes chirurgicales. 2. Pathogénie des accidents infectieux chez les urinaires. 3. Des opérations chirurgicales sur les voies biliaires. Résultats immédiats et éloignés. Les séances du matin seront consacrées aux visites dans les Hôpitaux et aux questions diverses. MM. les Membres du Congrès sont priés d'envoyer, le 20 février au plus tard, le titre et les conclusions de leurs communications, à M. Félix Alcan, Éditeur du Congrès, 108, boulevard S$^{t}$-Germain, auquel on pourra s'adresser également pour tous les renseignements concernant le Congrès.—Le Secrétaire Général, S. POZZI.

PREMIER CONGRÈS INTERNATIONAL DE GYNÉCOLOGIE ET D'OBSTÉTRIQUE.—La Société belge de Gynécologie et d'Obstétrique prend l'initiative de fonder un Congrès international périodique de

Gynécologie et d'Obstétrique, qui tiendrait ses sessions tous les quatre ans, alternativement en Suisse et en Belgique. La première session aura lieu à Bruxelles, du 14 au 19 septembre 1892 inclus. Trois questions ont été portées à l'ordre du jour:—1° Des suppurations pelviennes, rapporteur M. le Dr P. Segond, de Paris; 2° Des grossesses extra-utérines, rapporteur M. le Dr A. Martin, de Berlin; 3° Du placenta prævia, rapporteur M. le Dr Berry Hart, d'Édinbourg. Le montant des cotisations est fixé comme il suit: 1° Membre fondateur: 300 francs. Cette cotisation opère le rachat des cotisations ultérieures; 2° Membre participant à la première session: 30 francs. Cette cotisation donne droit au titre de membre et à la réception ultérieure du compte rendu des travaux du Congrès. Les inscriptions pour communications, discours, démonstrations, etc., doivent être adressées au *secrétaire général*, Dr JACOBS, 12, rue des Petits-Carmes, à Bruxelles (jusqu'au 1er juillet 1892). Le Comité d'organisation a entrepris d'annexer au premier Congrès une Exposition internationale d'instruments et appareils se rapportant à la gynécologie et à l'obstétrique, qui aura lieu dans les locaux du Congrès et à la Maternité de Bruxelles. Prière d'adresser toutes les correspondances concernant le Congrès et l'Exposition au secrétaire général.

ELFTEN CONGRESS FÜR INNERE MEDICIN.—Der elfte Congress für innere Medicin findet vom 20–23 April 1892 zu Leipzig im Deutschen Buchhändlerhause, Hospitalstrasse, unter dem Vorsitze des Herrn Professor Curschmann (Leipzig) statt. Die Themata, welche zur Verhandlung kommen sollen, sind:—Mittwoch, den 20 April: Die schweren anämischen Zustände. Referenten: Herr Biermer (Breslau) und Herr Ehrlich (Berlin). Freitag, den 22 April: Die chronische Leberentzündung. Referenten: Herr Rosenstein (Leyden) und Herr Stadelmann (Dorpat). Die nachstehenden Vorträge sind bereits angemeldet: Herr Emmerich München): Ueber die Ursache der Immunität und die Heilung von Infectionskrankheiten. — Herr Peiper (Greifswald): Ueber Urämie.—Herr Rob. Binswanger (Kreuzlingen-Constanz): Ueber die Erfolge der Suggestiv-Therapie.—Herr Goltz (Strassburg): Ueber die Folgen der Ausschneidung grösserer Stücke des Rückenmarkes (Bericht über Beobachtungen, welche von den Herren Goltz und Ewald an Hunden angestellt wurden).—Herr Schott (Nauheim): Zur Aetiologie der chronischen Herzkrankheiten.— Herr v. Jaksch (Prag): Thema vorbehalten. — Herr Fürbringer (Berlin): Zur Kenntniss der sogenannten Leberkolik und Pseudogallensteine.—Herr Vucetic (Mitrovitz): Behandlung des Alkoholismus.—Herr Minkowski (Strassburg): Weitere Mittheilungen über den Diabetes mellitus nach Pancreas-exstirpation. Herr Ebstein (Göttingen): Thema vorbehalten.—Herr Adamkiewicz (Krakau): Ueber die Behandlung des Carcinomes.—Herr Finkler (Bonn): Die verschiedenen Formen der Pneumonie.— Herr Gerhardt (Berlin): Thema vorbehalten. — Herr Geppert

(Bonn): Thema vorbehalten.—Herr Israël (Berlin): Ueber die secundären Veränderungen der Kreislaufsorgane bei Insufficienz der Nierenthätigkeit.—Herr Landois (Greifswald): Ueber den therapeutischen Werth der Bluttransfusion beim Menschen.—Herr Rütimeyer (Basel-Richen): Zur Pathologie der Bilharziakrankheit.—Herr Grawitz (Greifswald): Ueber die hämorrhagischen Infarcte der Lungen.—Herr Klebs (Zürich): Ueber die Heilung der Tuberkulose und die Biologie der Tuberkelbacillen.—Herr G. Klemperer (Berlin) und Herr F. Klemperer (Strassburg): Untersuchungen über die Ursachen der Immunität und Heilung, besonders bei der Pneumonie.—Herr Buchner (München): Ueber Immunität gegen Infectionskrankheiten.—Herr v. Ziemssen (München): Ueber subcutane Bluttransfusion.—Herr F. Wolff (Reiboldsgrün): Ueber das Verhältniss der Infectionsgefahr zum wirklichen Erkranken bei Tuberkulose.—Herr Löffler (Greifswald): Thema vorbehalten.—Herr Rich. Stern (Breslau): Ueber Darm-Desinfection.—Herr H. Leo (Bonn): Beobachtungen über Diabetes mellitus. — Herr Schreiber (Königsberg): Ueber Circulationsstörungen in den Nieren. Mit dem Congresse ist eine *Ausstellung* neuerer ärztlicher Apparate, Instrumente, Präparate, u. s. w. verbunden. Anmeldungen für dieselbe sind an den Local-Secretär des Congresses, Herrn Privatdocenten Dr Krehl, Leipzig, Thalstrasse 31, zu richten.

SMALL CLINICAL CHARTS.—Mr H. K. Lewis, Gower Street, London, sends us specimens of small Clinical Charts, which are beautifully printed and most convenient for slipping unfolded into a small pocket-book. A very fine crow-quill will be necessary to *write* the reports as to pulse, respiration, and other necessary data, and either very good eyes or a magnifying glass will be required to *read* them.

CHEAP SUBSTITUTE FOR WOOL FOR SURGICAL DRESSINGS.—Mr Charles W. Cathcart writes to say that, since his last communication (in October), he has found that the wood of the British Coniferæ is so highly absorbent in its natural state, that he now hopes to be able to do without the boiling in caustic soda which he formerly advocated. He therefore now recommends as a surgical dressing, very fine shavings made of such wood as Spruce, Silver or Scots fir, with no preparation other than that of impregnation with antiseptic materials. He hopes soon to furnish further particulars, but wishes to publish his present views so as to prevent them from being patented.

## OBITUARY.

### SIR MORELL MACKENZIE, M.D.

IN mid-summer '89, the writer passed a night at the charming riverside village of Wargrave-on-Thames as the guest of Sir Morell Mackenzie. After spending the greater part of a beautiful summer evening on the river in a gondola propelled by his daughters in true Venetian style, Sir Morell proposed that we two should visit the churchyard—one of the prettiest in England, he styled it. "I am looking forward to a period of rest here," said the busy, wearied, harassed man. And his rest has come, at the comparatively early age of 55.

Sir Morell Mackenzie was a man of marked individuality and intense self-reliance. His mental receptivity and foresight were shown in the readiness with which he adopted the laryngoscope, then an untried instrument in this country, and by its aid rapidly built up a large consulting practice. The Throat Hospital, which he founded and for many years directed, is a striking tribute to his powers of organization and administration. As showing the humble origin of this institution and its founder's spirit of determination to succeed, it is well known that Dr Mackenzie in its early years not only acted as physician, but also as dispenser. He examined and prescribed for the patients in one room, and made up their prescriptions in another, taking care that in handing out the medicines his face should not be seen. His book on *Diseases of the Throat and Nose,* with its exhaustive bibliography, many valuable original observations and records of cases, and absence of padding, bears witness to his thoroughness, and his immense powers of application and fondness of work.

Sir Morell Mackenzie was but a young man when he commenced practice in London as a specialist in Diseases of the Throat, and within five years thereafter, as he himself informed the writer, he was earning £5000 per annum. This early and unprecedented success was unfortunate (or fortunate ?) for him in one respect—it helped to make open enemies of many pseudo-friends. We are told the world worships success; if so, it is usually more from fear than love. The process of conversion was not in the least obstructed by Mackenzie's habit of *not* turning his other cheek to the smiter, as is testified by many cleverly composed polemical articles from his pen in both the lay and medical press. The best specimens of this side of his character are probably his papers on "Specialism in Medicine," which appeared a few years ago in the *Fortnightly.*

We have lately heard a great deal about his kindly relations to members of the theatrical and musical professions, and of the numbers of actors and singers who used to avail themselves of his gratuitous services. As with these professions, so with that of Medicine, for the numbers of doctors, doctors' wives, and doctors' children who had recourse to his advice and marvellous operative skill were simply enormous. Nor did he grudge this, but considered it, as it undoubtedly was, the highest mark of confidence and esteem on the part of his professional brethren.

Apart from his profession, Sir Morell Mackenzie was a man of culture and artistic tastes. He was an experienced traveller, and his visits to and observations in other countries have occasionally formed the subjects of articles in the lay press. The educative effect of travel, and his wide knowledge of men, together with a commanding presence and courtly manners, made up a personality which, when once seen or met with, could never be forgotten. His influence over his fellow-men was great. A story is told of a patient who died in his consulting-room after an operation. The brother of the patient, when informed of the fact, was highly incensed, and proceeded to Mackenzie's house to pour the vials of his wrath upon the head of the unfortunate doctor. He met Mackenzie in the consulting-room, and the outcome of the affair was, that not only was the visitor soothed, but then and there had his own throat examined, and paid the customary fee.

By the demise of Sir Morell Mackenzie the medical profession loses one of the most outstanding figures of the latter half of the century—one whose name will long be remembered as the pioneer of the science, and the successful practitioner of the art, of that branch of surgery which he has made peculiarly his own.

G. H. M'K.

## PUBLICATIONS RECEIVED.

James Barr, M.D.,—The Treatment of Typhoid Fever. H. K. Lewis, Lond., 1892.

G. M. Beard, M.D., etc., and A. D. Rockwell, M.D., etc.,—On the Medical and Surgical Uses of Electricity. H. K. Lewis, Lond., 1891.

Robert Bell, M.D., etc.,—Tuberculosis and its Successful Treatment. David Bryce & Son, Glasgow, 1892.

Dr L. Brocq,—Traitement des Maladies de la Peau. Octave Doin, Paris, 1892.

Catechism Series,—Public Health, Part V. E. & S. Livingstone, Edin., 1892.

R. Coltman, Jr., M.D.,—The Chinese, their Present and Future: Medical, Political, and Social. F. A. Davis, Philadelphia, 1891.

T. H. R. Crowle, F.R.C.S.,—Pye's Surgical Handicraft. John Wright & Co., Bristol, 1891.

Examination Questions in Practice of Medicine, with Answers, Part I. General Diseases. E. & S. Livingstone, Edin., 1892.

George Foy, F.R.C.S.I.,—Acute Double Pneumonia Successfully treated by Bleeding and Inhalation of Oxygen. Fannin & Co., Dublin, 1892.

James W. Martin, M.D.,—Yellow Fever. E. & S. Livingstone, Edinburgh, 1892.

John Wm. Moore, M.D., etc.,—Text-Book of the Eruptive and Continued Fevers. Fannin & Co., Dublin, 1892.

K. W. Ostrom,—Massage and the Original Swedish Movements. H. K. Lewis, Lond. 1892.

Paul Paquin, M.D.,—Microscopical Diagnosis of Tuberculosis. Little Blue Book Co., Battle Creek, Mich., 1892.

Frederic Pincott, M.R.A.S.,—Social Reform by Authority in India. T. Fisher Unwin, Lond., 1892.

Samuel Sexton, M.D., and Alex. Duane, M.D.,—Deafness and Discharge from the Ear. J. H. Vail & Coy., New York, 1891.

Wm. Sharp, M.D., etc.,—A Drug is its own Antidote. George Bell & Sons, Lond., 1892.

James Shaw, M.D., etc.,—Epitome of Mental Diseases. John Wright & Co., Bristol, 1891.

Chr. Sihler, M.D.,—The Hydriatic Treatment of Typhoid Fever. Chr. Sihler, Cleveland, O. U.S.

Richard Sisley, M.D., etc.,—Influenza and the Laws of England concerning Infectious Diseases. Longman, Green, & Co., Lond., 1892.

J. L. Smith, M.D., etc.,—A Treatise on the Diseases of Infancy and Childhood. H. K. Lewis, Lond., 1890.

Dr A. Sperling,—Elektrotherapeutische Studien. Leipzig, 1892.

J. L. Steven, M.D., etc.,—The Pathology of Mediastinal Tumours with Special Reference to Diagnosis. H. K. Lewis, Lond., 1892.

S. A. K. Strahan, M.D.,—Instinctive Criminality. John Bale & Sons, Lond., 1891.

H. G. Sutton, M.B., etc.,—Lectures on Pathology. J. & A. Churchill, Lond., 1891.

Thirty-fifth Detailed Annual Report of the Registrar-General of Births, Deaths, and Marriages in Scotland for 1889.

W. Ward, A.M., M.D.,—Diseases of the Nasal Organs and Naso-Pharynx. G. P. Putman's Sons, New York, 1891.

Year-Book of Treatment for 1892. Cassell & Coy., Lond., 1892.

# Part First.

## ORIGINAL COMMUNICATIONS.

### I.—CEREBRAL LOCALISATION IN RELATION TO THERAPEUTICS:

Being the Cameron Lecture of the University of Edinburgh, Delivered February 26, 1892.

By David Ferrier, M.D., LL.D., F.R.S.

In addressing you on this occasion I desire, in the first place, to express my grateful appreciation of the distinguished honour conferred on me at the Graduation Ceremonial in August last, and, secondly, endeavour to fulfil the obligation which the Cameron Prize entails on me of making a few remarks in explanation, or justification, of the award of this honour on myself.

I understand that the Cameron Prize is essentially therapeutical in its objects, and was originally restricted to what was considered the most important contribution to therapeutics of the year of the award. Recently, however, the scope has been widened, and it is now in the power of the University to confer it not only for work done during the year, and for researches in pharmacology proper or methods of treatment, but for such also as are calculated to lead to improvement in the healing art, by extending our knowledge of the functions of the body, and giving greater precision to the diagnosis of the seat and nature of the diseases with which we have, as physicians and surgeons, to deal. Under this more comprehensive, and, may I say, more enlightened, view of the foundations of rational therapeutics there have been inscribed on the roll of the Cameron Prizemen the names of two whom all the world delight to honour —Pasteur and Lister. Of these great men it may be truly said, that their researches, beautiful in themselves, have had a more beneficial influence on therapeutics than any that could have been selected out of the whole range of medicine of this or any time. Not only have they saved countless lives of men and animals, and added to the comfort and well-being of mankind in ways not always realized or acknowledged, but they have led the van in the new pathology and prophylaxis of septic and infectious disease, of which, as has been said by Burdon-Sanderson, "it requires no prophetic instinct to foresee that we are on the very threshold of discoveries in medicine such as will eclipse in their splendour all that has preceded them" (*Croonian Lectures*, 1891). It is not often, however, in the history of the healing art that revolutions such as these have been effected. Progress in therapeutics has been for the most part rather an evolution,—the resultant of many co-operating factors. Who shall say to what particular observation or experiment, taken by itself, we owe the improved methods of curative and preventive medicine, which, with all their imperfections, we boast of at the present day, as compared with those of a previous generation? One advance, in whatever department of science, leads inevitably to another. Every truth, however isolated and unimportant it may appear, finds its place in the triumphal procession of scientific knowledge, and paves the way to some grand generalisation, which in its turn illuminates and demonstrates the application of facts which the discoverers themselves were incapable of foreseeing. They know little of the history and conditions of the world's progress in the arts and sciences who would measure the value of a new truth by the immediate practical application to which it may be turned, either as a means of increasing wealth or ministering to corporeal comforts. The immediate utility of any addition to the sum of human knowledge is not a thing that the true scientific inquirer need concern himself about. His sphere is the pursuit of truth for its own sake, and his supreme pleasure the gradual unfolding of the precious secrets which Nature yields to his laudable solicitations. He knows that the greatest misfortune the world labours under is ignorance. We are decimated by epidemics and overwhelmed by the forces of nature, which we vainly attempt to avert or foresee by the imperfect means at our command. New knowledge means new power, and every addition to the sum of knowledge must in time enable us to cope more successfully with the evils and dangers by which we are constantly surrounded. And yet at this time we hear on all sides little but depreciation, or only the faintest praise of the recent bacterial investigations on the causes of influenza and other epidemic diseases, because they have not yet borne the therapeutical fruit which we all naturally long for. Surely an exact knowledge of the nature and life history of these minute organisms must be the first requisite for grappling successfully with them and their destructive virus; and it would be more becoming if our countrymen were to offer greater encouragement to these and similar researches of surpassing importance, instead of ignobly waiting to reap where they have not sowed, or even mischievously endeavouring to uproot the struggling seed. "It would be difficult," says Sir James Paget, "to think of anything that seemed less likely to acquire practical utility than those researches of the few naturalists who, from Leeuwenhoeck to Ehrenberg, studied the most minute of living things—the Vibrionidæ." Men boasting themselves as practical might ask, "What good can come of it?" Time and scientific industry have answered, "This good: those researches have given a more true form to one of the most important doctrines of organic chemistry; they have introduced a great beneficial change in the most practical part of surgery; they are leading to one as great in the practice of medicine; they concern the highest interests of agriculture, and their power is not yet exhausted" (*Trans. Internat. Med. Con.*, 1881, p. 18).

The guiding principle of modern medicine, as Virchow has wisely remarked, is localisation. We no longer look upon disease as an entity,—an enemy which has invaded the body but is not of it, and which it is the aim of the physician to exorcise or slay; nor do we engage in empty and acrimonious wrangles as to the respective merits of humoralistic or solidistic conceptions of diseased processes or methods of treatment. That which we are striving to know is, what organs and what tissues, and what precise structural or nutritional modifications of these tissues, underlie the morbid manifestations which together constitute the symptomatology of disease. Then only can we be said to have any real knowledge of its intimate pathology; and then only shall we arrive at a rational therapeutics, when we are able to localize with similar precision the action of the means which we employ to stimulate, modify, or counteract the growth and activity of the elemental units, tissues, and organs of the body.

If with increased knowledge it should appear hopeless to contend against many functional perversions and structural degenerations, it will be a decided advance in therapeutics to recognise the limit of our powers; to know what not to do, as well as when to intervene; to cease to follow the blind empiricism of (as some one has sarcastically called it) "pouring drugs of which we know little into a body of which we know less," and direct our energies rather towards the establishment and propagation of more enlightened conceptions as to the causes of disease and the means of its prevention.

The localisation of cerebral functions is only another step forward in the general advance which has been made in every department of medical science in recent years, and its value in a therapeutical sense is to be estimated mainly by the light it has thrown on the diagnosis of cerebral disease, and the means of dealing with it, present and prospective. Few, if any, will question our right to boast with the son of Tydeus, that we are in this respect much better than our fathers.

I remember well when I came here as a student some twenty-five years ago, fresh from the psychological prelections of Bain and Wundt, and keenly interested in the physiology of the brain and nervous system, how unsatisfactory was the then state of cerebral physiology, so eloquently expounded by our revered teacher Professor Hughes Bennett. The phenomena of experiment and disease, we were taught, indicated that the gray matter of the cortex in some mysterious way, and apparently beyond our powers of anatomical or physiological analysis, was the organ of mind, in which, in some still more recondite manner, volitional impulses were elaborated and projected through the corpus striatum on the muscles of the opposite side of the body; while the general sum of all else, physiologically speaking, was in what direction animals rolled when lesions were established in this ganglion or that. Without foundation, either clinically, experimentally, or craniographically, was the phrenological localisation of metaphysical abstractions; on the contrary, the brain was, as a whole, and in each and every part, the basis of all mental operations, indivisible, like the mind itself, so that though sliced, cut, or otherwise maltreated, yet, provided the destruction was not too great, the mental faculties remained intact and complete. I have also a vivid recollection of being present one evening at a meeting of the Royal Medical Society at which a brain was exhibited which excited much interest and discussion. It was a beautiful specimen of the brain of an aphasic, which completely bore out the relation between this affection and lesion of the inferior frontal convolution of the left hemisphere contended for by Broca, but which at that time was neither so well known nor admitted as it is now. It could not be brought in harmony with the recognised school physiology, nor could any explanation be given of a faculty of language localized in the one hemisphere to the exclusion of the other and apparently symmetrical half. At the same meeting Sir William Turner first published his important and much-quoted memoir on the Topography of the Cerebral Convolutions, and demonstrated order, form, and regularity in what appeared at first sight a shapeless confusion. These things made a great impression on me. Very early in my professional career in London I had the good fortune to form intimate relations with Dr Hughlings Jackson, whose views on cerebral physiology and pathology were far in advance of his time, and widely divergent from those of the schools. The essence of his teaching was that the substrata of mind were, and could only intelligibly be, sensory and motor processes; and that the phenomena of partial or unilateral epileptiform seizures, occurring in connexion with cortical lesions of various kinds, indicated irritation or functional discharge of convolutions concerned with movements. These doctrines found in my mind a receptive soil; they were the immediate instigators of my own researches, and I owe to Hughlings Jackson's inspiration such part as I have taken in the establishment of the principle of cerebral localisation.

I will not trespass on your patience on this occasion by recounting, as I have done elsewhere, the methods of investigation, the controversies that arose as to the interpretation of the results, the apparent discrepancies of comparative experimentation, or the respective share, clinical and physiological, of the various researches through, and by which we have acquired such knowledge as we now possess of the brain, and the relations of its different parts to each other, and to the organs by which we act on, and are influenced by the external world. The general result has been that the doctrine of functional equivalence has given place to that of functional differentiation in physiology and medicine. Such exceptions as are still taken to the latter doctrine are founded on data which prove, on critical examination, to be perfectly consistent with the principles which it inculcates. We have learnt that the cerebral cortex is not in all its parts functionally equivalent, but is divided into territories, respectively related—anatomically as well as functionally—to the organs of sense and organs of motion. These territories are further subdivided into regions corresponding with our separate faculties of sense and powers of volitional movement. There is a visual area, the basis of visual perception and ideation; an auditory area; an olfactory area, and probably also a differentiated gustatory centre; and a centre of common sensibility. There are special centres for the movements of the trunk; of the head and eyes; of the lower and upper limbs, and of each segment or even digit of each limb; of the face, mouth, and tongue; and of the organ of voice. We have not as yet succeeded in defining regions or centres directly or indirectly related to the organic functions, and forms of sensibility, which enter so largely into the foundation of our personality and emotional life; and there are many other points on which our knowledge is still very imperfect. But we have ascertained that the substrata of mind are essentially sensory and motor processes in their respective relations, cohesions, and associations. Therefore it is vain and unphilosophical to look for a special seat of intelligence or will, or seek to localise so-called "faculties," or mere metaphysical abstractions. The factors of the sound mind are the healthy and orderly energizing of sensory and motor centres, and have their mechanical, chemical, and thermal equivalents; and the factors of the unsound mind are the no less certain, though less obvious, manifestations of structural or nutritional disorders of the same tissues, as are paralysis, convulsions, and abnormalities of sensation. We are now able to understand why in one case the brain may be transfixed, or a large amount of gray matter lost, without any obvious loss of sensation or motion; and why in another a similar lesion, differently situated, necessarily entails a hemiopic loss of vision. And why also a lesion of the cortex, according to its character and position, may cause a paralysis or convulsion limited to the face, or hand, or foot—all other functions remaining unimpaired. We can now explain the apparent discrepancies between the facts of clinical medicine and the results of experiment on the lower orders of animals which puzzled former clinical observers. "It is certain," says Bouillaud, "that, after ablation of the cerebral hemispheres, an animal may walk, run, etc., and it is no less certain that an ablation of the cerebral hemisphere in man gives rise to a paralysis, more or less complete, of volitional motion on the opposite side of the body. Can we refute the one set of facts by the other? No, certainly not, for facts equally well established are not susceptible of refutation. A time will come when new light will dispel the apparent contradiction which exists between them." The study of comparative physiology has shown us, that in proportion as animals rise in the scale of evolution, the more their actions are conditioned by conscious discrimination and volition proper, the greater the disturbance created by lesions affecting the cortical centres which govern and register their motor capacities and acquisitions.

Though we still seek for the primary causes of dextral pre-eminence and left-brainedness in much more than relates to mere manual movements, we can give a rational explanation of the empirically established relationship between aphasia and lesion of the region which we now know to be the motor centres of articulation and phonation. And we can, on similar principles, account for those curious mental defects, exemplified in one patient by a total inability to comprehend the meaning of written or printed symbols, or even to read the letter in which he has just expressed his thoughts in clear and precise language, while he can readily understand the same when uttered in his hearing; and in another patient by a total inability to comprehend, or repeat, what is spoken to him, while he may understand the meaning of printed or written equivalents of the same. These and similar phenomena of cerebral disease open the door to the solution of many interesting problems of brain and mind; and, more important perhaps in a practical sense, they furnish us with valuable diagnostic indications of the position of lesions, and guide us securely in our efforts to expose and remove them.

Electrical exploration of the brain has further, both incidentally and as the result of inquiries specially directed to this end, thrown much light on the pathology of epilepsy and the principles of its treatment. Up to a comparatively recent date, the convulsive phenomena of epilepsy were accounted for by the hypothesis of a state of irritation of a so-called convulsive centre in the pons medulla, while the loss of consciousness and other mental disturbances, with which these convulsions are associated, were considered only the indirect result of spasm of the cerebral arterioles. Experimental research has not only demonstrated the accuracy of Hughlings Jackson's views as to the cortical origin of monospasms, and unilateral, or it may be generalized, epileptiform convulsions, but has furnished a simple explanation of the order and sequence of events in the epileptic paroxysm, and rendered it more than probable that all forms of epilepsy have their starting-point in an irritable or unstable condition of the gray matter of the cerebral cortex. In most animals, and in some more readily than in others, it is easy by electrical irritation to reproduce all the classical phenomena of an epileptic attack, namely, tonic and clonic convulsions, dilatation of the pupils, salivation and frothing at the mouth, biting of the tongue, loss of consciousness, followed by obnubilation of intelligence, hallucinations, or maniacal impulses.

If the irritation is diffuse and prolonged, and, more particularly, if it starts primarily from the sensory centres, the phenomena are more of the type of so-called idiopathic epilepsy, in which all the motor centres of the cortex are discharged more or less simultaneously, and in which it is practically impossible to analyze the sequence of events. If the irritation is circumscribed to a particular motor centre, the epilepsy may consist in a series of spasms confined to the corresponding muscular group, or it may diffuse itself into neighbouring centres, in which case it follows the order in which these centres are anatomically disposed in the motor area, and invades the muscles in correspondingly definite sequence. If the primary irritation is in the face area, it ascends through the arm centre to those of the leg; and if it begins in the leg area, it descends through the arm centres to those of the face; and when, as not unfrequently happens, the convulsions spread to the other side, the order is invariably a discharge downwards from the leg to the face area, or outwardly, an ascent of the convulsions from the leg to the face. While the motor centres of the pons medulla and spinal cord, through which the cortical motor centres act, undoubtedly participate in the epileptic discharge, it has, I think, been conclusively established that convulsions of the truly epileptic tonico-clonic type can only be induced by discharge proceeding from the motor centres of the cortex on the one side or the other. The characters of the auræ or prodomata of the epileptic paroxysm, such as the dreamy sensations and similar intellectual states, the illusions or hallucinations of smell, taste, hearing, and vision, are also significant of the cortical origin of the attack, and afford valuable diagnostic indications of the position of the epileptogenic focus.

While, however, we should consider the instability of the cortical gray matter as the immediate cause of the epileptic attack, it is not implied that the instability has always its primary origin here; for clinical investigation has demonstrated beyond all question the fact that epilepsy may be conditioned by ento- or epiperipheral irritation of various kinds, such as of nerves, viscera, or cerebral membranes. But the point of capital importance is, to recognise that these cause epilepsy by inducing an irritable condition of the cortical motor centres, and that our efforts must be directed towards determining what are the structural or nutritional changes in the cortex which underlie these phenomena, to determine their position, and direct our therapeutic measures accordingly.

We have learnt also, during the course of our inquiries, that injuries of the brain may become long afterwards not only the foci of excitation of epileptic attacks in the animal itself, but also cause the transmission of the same malady, or a predisposition to it, in its progeny. These facts have, I need scarcely say, an important bearing on the genesis and hereditary transmission of epilepsy in men. In the experimental methods of measuring and registering the excitability of the cortical centres, we have also a valuable means of testing the action of the therapeutic agents empirically or theoretically employed in the treatment of epilepsy. It has been already shown that the excitability of the cortical centres is lowered, and the predisposition to epileptic attacks diminished, by chloroform, chloral, bromide of potassium, etc.; while it is greatly increased by absinthe, strychnine, and atropine, which last has long been regarded, though probably erroneously, as a valuable agent in the treatment of this affection. The influence of several other agents on the excitability of the cerebral cortex has also been to some extent studied; but comparatively little has yet been done in this direction, and it is probable that there lies here a fruitful field for pharmacological labour, which will yield to diligent cultivation results of great practical value in the treatment of one of the most distressing ailments to which our fellow-creatures are liable.

Physiological research has further not only furnished the clue through the intricate labyrinth of cerebral disease, in which unaided clinical observation had failed to find its way, and established principles of diagnosis which enable us to place our finger on the exact seat of disease; but it has proved that, under the ægis of Lister, we may not only open the skull, but penetrate within the veil of the dura mater, and handle or excise portions of the brain itself, with little or no risk to life, and without fear of the evil-omened hernia cerebri, or universal meningitis, the frequency of which, after such operation in former days, had caused the trephine either to be repudiated altogether by many surgeons, or resorted to by others only as a forlorn hope. The practice of trephining has undergone great vicissitudes. Long before the days of Hippocrates, who described with great detail the methods and indications for the use of the trephine in injuries of the head, and long before the dawn of history itself, trephining the skull, as has been shown by the researches of Broca, was a common practice in the Stone Age. In the Neolithic mounds of France numerous skulls and portions of skulls have been discovered, in which complete openings, or portions of their circumferences, are visible, the edges of which are smooth, bevelled, and well cicatrized, and therefore evidently made during life; and apparently at an early age, for the condition of the sutures, and altered development of the bones of the skull, show that the individuals had lived long after the operation had been performed. The shape and character of the openings indicate that they were made by a process of *raclage*, or rude scraping with a sharp flint. This must have been a most painful process, but nevertheless many had the courage to submit to it. What the origin of the practice was is only a matter of conjecture; but it is most probable, as Broca supposes, that it was for the treatment of convulsions or epilepsy proper,—the *morbus divinus* or sacred disease of the ancients. Whether the indications were furnished by the cessation of epileptiform convulsions of traumatic origin on removal of the depressed fragments of bone, or whether it was with a view to give exit to the evil spirit or demon who had taken up his residence in the body of the poor victim, which was the ancient belief, it is likewise impossible to say; but there is no doubt that those who had been trephined and survived were regarded as sacred, and at their death it was the custom for their friends and relatives, or other members of the tribe, to fashion for themselves amulets out of the margins of the trephine openings, which they suspended or carried about their persons, in order to ward off similar evil spirits and other malign agencies by which they believed themselves to be constantly surrounded. Such amulets, made from other skulls, were sometimes inserted at death into the interior of the skulls of those already trephined, to act as a viaticum or talisman on their journey through the unknown world into which they had passed. And similar practices have also been described as prevalent among certain savage tribes of the present day.

In the earlier days of historical surgery the dangers of trephining did not bulk so largely in the eyes of surgeons as they did in more modern times, and particularly in the days of hospitalism. Thus it is related by Cornelius von Solingen that Philip of Nassau, having fallen from his horse and fractured his skull in several places by striking his head against the stump of a tree, was trephined seventeen times by a surgeon of Neomagen. From this he recovered completely, and proved the steadiness of his head by being able to drink three of his companions to death. Another surgeon trephined a patient twenty-six times unsuccessfully with a view to discover an effusion on the brain, and found it at the twenty-seventh time and cured his patient. There is on record a still more remarkable case of a patient who survived after having been trephined fifty-two times within the space of two months. While Sir Astley Cooper looked upon trephining as one of the most dangerous operations in surgery—an operation, in fact, in which there was only a thin membrane between the patient and eternity—and while Desault found that every case so operated on in the Hôtel Dieu died without exception, Percival Pott strenuously advocated trephining as a curative, and still more as a preventive, measure under circumstances which other surgeons were in the habit of leaving to nature, or treating on heroic antiphlogistic principles. Owing to the influence of Pott, or some of his pupils, or perhaps, as Lucas Championnière suggests, as a survival of prehistoric times, trephining for cranial injuries has long been prevalent in certain mining districts of Cornwall (see Hudson, *Brit. Med. Jour.*, July 1877). "So firm is the popular belief," says Hudson, "in the efficacy of the trephine, or 'boring' as they term it, that a surgeon who hesitated to employ it under the pretence of waiting for symptoms would assuredly suffer in reputation, if, in the event of death, he were not put on his trial for manslaughter." It needs no elaborate compilation of statistics to enable us to arrive at the assurance that, apart from the gravity of the conditions for which the operation was undertaken, and which would be practically the same under any method of treatment, the chief cause of the mortality which led to trephining being proscribed by so many surgeons, was not the operation itself, but those deadly invisible foes which Lister has taught us so successfully to circumvent. The statistics of modern surgery prove that, under antiseptic precautions, the mere operation of trephining the skull is uniformly without risk; and, further, that the mortality of operations for cranial injuries of all kinds and their results, primary or secondary, has been reduced from some 50 per cent. to 15 per cent. or less. But the improvements in the treatment of surgical lesions proper—that is, those in which the indications are more or less independent of localisation diagnostics—are not to be attributed wholly to antiseptics, for the damage done is not always correctly indicated either in extent or locality by the superficial wound; and the surgeon is guided largely, and his operations are directed, by the principles which have been established mainly by experimental physiology. In a report to the Academy of Sciences (April 1877) on the surgical application of the doctrines of cerebral localisation, M. Gosselin expressed a strong opinion that the only reliable guide to the operation of trephining was the external injury, and that, apart from this, trephining was more likely to be injurious than the reverse. The erroneousness of this forecast has been amply demonstrated by the records of cerebral surgery during the last ten years. I might quote numerous examples in proof of this statement, but a single one reported by Macewen will suffice (Case II., "Surgery of the Brain, etc.," Brit. Med. Assoc. Meeting, Glasgow, Aug. 1888). This was the case of a boy who had had a fall six days previously, which had caused some bruising of the head and face, and slight mental obscuration. At the end of forty-eight hours he was apparently quite well, but on the sixth day he had a series of convulsions beginning in the left side of the face, gradually invading the arm and ultimately the leg, followed by slight paresis or weakness of these limbs. These attacks recurred and passed into general convulsions. Macewen rightly concluded that the symptoms indicated irritative lesion of the brachio-facial centres at the lower part of the ascending convolutions of the right hemisphere. He exposed the skull in this region, and discovered a fissure running across it. On trephining no blood was found between the skull and the dura mater, but on incising the dura mater two ounces of semi-coagulated blood were evacuated. The operation was conducted aseptically, and the patient made an uninterrupted afebrile recovery. There was no recurrence of the fits, the paralysis of the left arm soon disappeared, and he is living now and in perfect health.

No more triumphant vindication than this could be given of the surgical value of cerebral localisation; for a reliance merely on external indications would in all probability have sacrificed the life of the patient, or resulted in incurable infirmity. The necessity and value of prophylactic cerebral surgery have also been emphasized and accentuated.

Although many cases of depressed fracture, and other forms of traumatic lesion, may appear to recover either spontaneously, or under so-called antiphlogistic treatment, independently of operative measures, yet there is always the risk of epilepsy or insanity supervening at a more or less distant date, which might have been averted by timely interference. Of such cases I might instance many. One of the most striking examples has also been reported by Macewen (Case XI. *op. cit.*) A man had received a cranial injury a year previously, and had become melancholic and subject to homicidal impulses. Prior to the receipt of the injury he had lived a contented, happy life with his family. There was no external sign of injury to his skull which could account for these phenomena, but on inquiry it was ascertained that immediately after the accident, and for a fortnight subsequently, he had exhibited symptoms of what has been termed "psychical blindness," or impaired visual ideation. He could see, but could not recognise what he saw, or understand the meaning of written or printed simple characters. These symptoms at once indicated the probable seat of the lesion, namely, the left angular gyrus. On trephining over this region it was found that a portion of the internal table of the skull had been detached and pressed down on the posterior aspect of the supra-marginal convolution, and some of it had been driven into the anterior limb of the angular gyrus. The bone was removed and reimplanted in its proper position. The result of this was the entire disappearance of the dangerous symptoms; and though a certain degree of excitability remained, the man was able to resume his ordinary occupation.

Up to a comparative recent date, however,—if we except the prehistoric practice of trephining for idiopathic epilepsy, and its continuance down to the sixteenth century (Taxil) by almost precisely the same rude methods,—the trephine was used solely with a view to remedy the primary or secondary results of cranio-cerebral injuries. Of these latter it has been most extensively practised for the relief of traumatic epilepsy,—that is, epilepsy in which an apparently direct causal relationship appears to have existed between the receipt of a definite cranial injury and the occurrence of the fits. There is no doubt that epilepsy may be so caused, either by direct lesion of the brain itself, or indirectly by irritation of the nerves of the scalp or cerebral membranes. Apart from the statistics of the cases actually operated upon,—the cures being variously estimated by Echeverria at 65 per cent., by Walsham at 58 per cent., König 59 per cent., and Seydel 69 per cent.,—the procedure is one which is fully justified by the beneficial results frequently following the removal of analogous sources of irritation—such, for instance, as a painful neuroma. But the really curative effect of merely trephining the skull and removing a painful cicatrix, or, it may be, a detached spiculum of bone imbedded in the dura mater, has been in all probability estimated at too high a figure; for the majority of the cases have been reported as cured when they have been merely discharged from further surgical supervision. Those in which the entire cessation of the fits has been established for a whole year or more are comparatively few; and it is quite consistent with our ordinary experience of epilepsy for a cessation of several months to be followed by a recurrence of the attacks in all their former severity at a more distant date. Out of eighty-two cases reported by Walsham, in a large majority there was a depressed cicatrix, whilst in the others there was a tender spot, without depression or other mark of former injury. In two-thirds of the cases a portion of the bone was found either depressed or in some way altered or diseased. The dura mater in a great number of the cases appeared healthy, but in some was thickened, adherent, or otherwise altered. But though he gives the number of cures as 58 per cent., I can find only 12 in which the report of the patients' freedom from fits extended to a year after the operation. Hence the even approximately proved cures of traumatic epilepsy by simply trephining the skull, without opening the dura mater, would be placed not at 58, but at the much lower figure of 15 per cent. Modern experience has not improved these statistics; and there is reason to fear that the cure of traumatic epilepsy by merely trephining the skull is very problematical. In any case, trephining is not indicated unless there is a clear proof of definite injury, and in addition, some sign of local irritation of the cortex near, or, it may be, at some distance from the wound. Surgeons who had trephined for traumatic epilepsy had contented themselves with merely opening the skull, and had shrunk from incising the dura mater, or operating on the brain itself. This, which constitutes the new departure in cerebral surgery, is the direct result of the new cerebral physiology. Though I had, on purely experimental grounds—the result of special researches on this subject in conjunction with my colleague Professor G. F. Yeo (Brit. Med. Assoc. 1880)—strongly advocated this procedure (*Marshall Hall Oration, Med. Chir. Soc.* 1883), the honour of having actually led the way in human surgery belongs to our countryman Macewen of Glasgow. In his brilliant address at the meeting of the British Medical Association in 1888, he gave the details of many cases in which, during several years previously, he had performed operations on the brain, guided by the principles of cerebral localisation. Out of twenty-one cases, he had operated successfully in eighteen, and of those who had died all were *in extremis* when operated upon.

The example set by Macewen has been followed by surgeons in every part of the world, and cases are being continually reported in the medical journals at home and abroad of the more or less successful application of the same principles which he took for his guidance.

In traumatic epilepsy from actual lesion of the brain substance the epileptogenic cicatricial tissue has been cleanly excised from the brain with the most beneficial results. One of the best examples of this kind is a case operated on by my colleague Mr Horsley, who has so distinguished himself in cerebral surgery. This was, I think, his first operation, and the case is one of special interest to an Edinburgh audience. It is that of an Edinburgh lad who, at the age of seven, was run over by a cab in Princes Street, and suffered compound fracture of the upper part of the left parietal bone, for which he was treated by Professor Annandale in the Royal Infirmary. He was dismissed at the end of three weeks, cured of his wound, and exhibiting only a slight degree of weakness of the right side, more especially in the leg. At the age of fifteen—that is, eight years after the accident—he began to suffer from frequent epileptiform convulsions, more particularly of the right side. As these increased in frequency and severity in spite of all medicinal treatment, I came to the conclusion that the only measure likely to give him relief was excision of the cicatrix, which was done. To give you an idea of the pitiable condition in which the patient was before the operation, I may mention that in one fortnight preceding it he had nearly three thousand fits, so that his life was despaired of. He speedily recovered from the operation itself, and with only a slight addition to his hemiplegic weakness. The operation was performed in May 1886, and from that date till now he has never had a single fit; he is in the enjoyment of excellent health, and able to gain his living by his own exertions.

Dr Jackson was the first to suggest—and his suggestion has been carried into effect in a considerable number of instances—that in all cases of epilepsy in which there is a definite monospasm or protospasm the epileptogenic focus should be excised, altogether irrespective of the existence of a demonstrable organic lesion, on the principle that the excision of the focus of irritation may lead to quiescence of the cortical centres and consequent disappearance of the fits. In a case reported by himself, in which the spasms began in the left thumb, the exposure of this centre, in the right hemisphere, revealed the presence of a tubercular nodule, the excision of which led in time to the entire cessation of the attacks. In many other instances equally beneficial results have been obtained; but in several the fits have not entirely ceased, notwithstanding the excision of the primary focus. The want of success in these cases may be attributed either to imperfect excision, or to the development of an epileptic habit, which continues notwithstanding the removal of the original source of irritation. The latter furnishes a strong reason for preventive trephining in traumatic cases, and surgical interference at as early a date as possible in others, before the epileptic habit has had time to become firmly established. At the same time, we should naturally avoid inflicting a perhaps greater evil in the form of aphasia, or similar infirmity, than that which it is our object to relieve. Actual excision of the epileptogenic focus, therefore, by surgical means may not always appear advisable, and it is earnestly to be wished that some method may be discovered of counteracting the irritability of the part, without causing its actual destruction. Whether we shall succeed—either by local medication, circumvallation, or other methods—remains to be seen, but in this direction I believe, as I have already said, there is a promising field for research.

Epilepsy and epileptiform convulsions, however, are not the most serious of the cerebral affections with which we have to deal. There are others which unless removed necessarily lead to death, and often after prolonged suffering. First among these is cerebral abscess. I allude in this relation more particularly to cerebral abscess of a non-traumatic character,—that is, abscesses arising independently of external and visible injury in the brain or its coverings. These latter have always been considered as demanding operative interference; and though this has been largely guided by the position of the external wound, yet, as in the case of hæmorrhagic effusions, these operations have been recently rendered much more precise, and much more successful, by the indications of the seat and extent of the mischief founded on modern cerebral physiology. Apart from traumatic influence, the great majority of cerebral abscesses arise in connexion with disease of the middle ear, acute or chronic. These abscesses are mostly situated, either in the temporal lobe or cerebellum, but whether in the one locality or the other, or elsewhere, can only be arrived at accurately by symptoms of predetermined diagnostic significance. Though the mortality from cerebral abscess must always be great, we can point to a goodly array of cases in which the abscess has been accurately diagnosed and successfully opened. In one case which I have myself recorded, the seat of the abscess in the left hemisphere was determined by an assemblage of symptoms—more particularly disordered speech and some degree of word-deafness, which pointed to lesion of the superior temporal gyrus. A trephine opening being made over this region, and the dura mater incised, the insertion of a trocar gave vent to a quantity of pus, on the evacuation of which all the symptoms speedily subsided. The patient made an uninterrupted and rapid recovery, and is now, after four years, in the enjoyment of good health, and pursues his occupation as a skilled mechanician.

The next group of cases is one which up to a recent date both medicine and surgery had altogether failed to relieve, and we could only helplessly watch the more or less rapid progress to a certain death. I speak of cerebral tumours. Unfortunately, a large proportion of cerebral tumours, perhaps 90 per cent. or even more, are in their nature and seat incapable of being reached or dealt with, and, therefore, the field of surgical interference must relatively be a limited one. We can make the dread diagnosis only too surely, and we can, as a rule, indicate the position even where we dare not interfere; but, on the other hand, there are many cases of tumour situated in regions capable of being reached, and which, if left alone, must lead to death just as surely as any others. These can often be accurately localised, and are frequently of such a nature as to permit of enucleation, or complete excision. It is in the treatment of diseases of this class that a new field has been opened for the surgeon, and though success has not always been attained, yet every successful case must be regarded as a rescue from the jaws of death. The first reported case of operation for cerebral tumour was one accurately diagnosed by our fellow-graduate Dr Hughes Bennett, and successfully removed by Mr Godlee. Unfortunately, when all appeared to be going well, the patient died from the effects of septic inflammation, and several others have died from the same cause,—a purely preventible accident. Some patients have died from shock; the tumour having attained a large size, and the patients' strength having been already exhausted by the long continuance of their sufferings. In others, the tumour, successfully removed for the time, has returned; while in others, the tumour, accurately localised, has been found not removable with safety, and yet the patient's life has been prolonged, and great relief has been afforded to his sufferings by the operation. Notwithstanding all the difficulties and dangers, there are now on record in the medical journals at home and abroad at least thirty-two cases in which the tumour has been successfully removed, and the patients restored to comparative health and comfort; and the results of my analysis of all the cases which have been reported, together with others which have come under my own knowledge or observation, shows that recovery has taken place in considerably more than half the number. This compares favourably with the mortality of many of the major operations in surgery, and interpreted in its true light means salvation of half the cases; and there is reason for believing that greater success may be attained in the future when the conditions of operation and after-treatment become better known.

If in this brief review of the progress of encephalo-therapeutics, which I have purposely avoided loading with technical detail, I have been able to prove to your satisfaction that not a few triumphs have been won, it is certainly not with the object of inducing a rest-and-be-thankful frame of mind. On the contrary, the more we know the more vast appears our ignorance, and the problems which crowd upon us for solution increase in number and complexity. After all, such progress as we have made relates almost exclusively to what we may term the gross diseases and lesions of the brain; whereas I fear it must be admitted that we have not as yet succeeded in connecting cerebral localisation with any noteworthy advance in psychiatry. And yet of all departments of medicine this is the one which it might have been expected would especially profit by an increased knowledge of the mechanism of the organ of mind. But as we are making our way only with slow and tentative steps in the correlation of the objective and subjective aspects of healthy cerebration, it is not surprising that we are still profoundly ignorant of the nature and causes of the varied and subtle deviations from the normal standard. It is in so-called diseases of the mind that the Virchovian principle of localisation has been least established. Mental diseases are still too much in the position of symptomatic generalisations raised to the dignity of nosological entities, which serve to conceal, if not perpetuate, our ignorance of their real etiology and pathology.

How in such a state of things can our treatment of this class of diseases be other than purely empirical? But the new cerebral physiology has not been without its effect on psychiatric medicine. The leaders and thinkers of this specialty are exchanging the terms of speculative metaphysics for those of a concrete psychology, and making strenuous endeavours to correlate morbid conditions of the mind with their physical basis, and in particular with the nutritional and structural alterations of the cortical centres which immediately underlie them; and are investigating, in association with the psychical symptoms, the various shades and degrees of impairment, or perversion of the motor, sensory, and organic functions which spring from the same cause, and are merely the objective side of the same pathological processes. It is impossible that researches carried on in these lines should not ere long yield abundant fruit, and I myself believe that it is from this side, namely, the study of the etiology and pathology of insanity, that we are likely to gain our truest insight into the correlations of mind and brain in general, and of the individual factors of our intellectual and emotional life. Until, however, these researches have been carried much farther than they have been as yet, and the conditions of the different forms of mental aberration determined with greater certainty and precision, we cannot look for any extensive practical application of the doctrines of cerebral localisation. But the remarkable success of surgery in respect to other forms of cerebral disease has stimulated the application of surgical methods also to the treatment of some in which mental deficiency or aberration is the chief feature, such as Lannelongue's craniectomy for microcephalic idiocy; Burckhardt's excision of the supposed foci of sensory hallucinations and maniacal impulses; and the operations of Clay Shaw and Batty Tuke for general paralysis of the insane. It is as yet too soon to pronounce definitely as to the value of these operations, and opinions may, and indeed do, differ as to whether the proposed procedure is the best calculated to obviate or arrest the primary or secondary conditions on which the symptoms depend. But I myself am of opinion that those of us, and that is the whole medical profession, who acknowledge our impotence to materially benefit these maladies by any other methods of treatment, should, while tempering zeal with discretion, look with favour on and encourage any well-reasoned plan which offers the slightest prospect of relief to these and other distressing forms of disease which now call for our aid in vain. In conclusion, I would express the hope that some, at least, of the younger and more enthusiastic of the alumni of our great and glorious University may be induced to address themselves to some of the many problems of cerebral pathology and therapeutics which yet remain unsolved. For I am certain that in no department of medicine are they likely to gain greater honour for themselves, or confer greater benefits on their suffering fellow-creatures.

## II.—THE DISORDERS OF SPEECH.

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(*Continued from page* 793.)

### PART II.—THE DEVELOPMENT OF SPEECH; AND THE DEVELOPMENTAL DERANGEMENTS—*Continued.*

### 4. *The Development of Speech in the Human Race.*

ANY account of the Development of Speech would be most incomplete if it were content merely to treat of the subject in its relations to the individual Child, and made no attempt to indicate the views that are current regarding it in its relations to the Human Race. This consideration has weighed with me, and has led me to write the following paper. Although the relations of the subject to practical medicine are somewhat remote, the facts brought out in the study of it are of great scientific value. They throw light upon the nature of speech and upon its relations to thought. Fortunately, in this country, the subject has been treated by a number of writers remarkable alike for eloquence and for learning. Any notes that I can make in this paper, from the works of these authors, must of necessity be brief and fragmentary; but I shall try to make a statement of their chief conclusions, and, when possible, shall give these conclusions in their own words.

### *The Development of Speech in the Human Race.*

"In examining the history of mankind," says Dugald Stewart, "as well as in examining the phenomena of the material world, when we cannot trace the process by which an event has been produced, it is often of importance to be able to show how *it may have been* produced by natural causes. Thus, although it is impossible to determine with certainty what the steps were by which any particular language was formed, yet if we can show, from the known principles of human nature, how all its various parts might gradually have arisen, the mind is not only to a certain degree satisfied, but a check is given to that indolent philosophy which refers to a *miracle* whatever appearances both in the natural and moral worlds it is unable to explain."[1]

These words of the eminent Edinburgh Professor were written about the end of last century, when the science of Philology was yet in its infancy. Since those days, that noble science has been pursued by many eminent scholars with brilliant success. Their investigations have thrown a flood of light upon the real nature of human speech. They have shown how the languages of mankind can be classified, according to their affinities, into a number of great groups; all the members of each group having evidently sprung from a common parentage. Even between the great groups, they have shown the existence of certain affinities, not it is true of a very pronounced or intimate character, but yet sufficient to render it probable, even on strictly scientific grounds, that the human race possessed at least the rudiments of speech before it was scattered abroad in the various parts of the world. The method pursued by modern philologists has been to a very marked extent an analytic one. They have studied in detail a vast number of languages, ancient and modern, and, according to the affinities discovered among them, have grouped them as above indicated. The chief ground for such a grouping has been the discovery that among the members of each group the "roots" of the words are possessed in common; that in certain of the groups these "roots" are welded together in a characteristic manner; and that among the members of each group there is in grammar and syntax much that betrays a common parentage. Something will presently be said about the characteristics of each of the great groups thus differentiated. In the meantime, perhaps an example or two will best illustrate the manner in which a community of "roots" can be shown to exist among the members of a great group. I shall take these examples from the pages of Prof. Max Müller, the leading exponent of philological science in this country. In dealing with the great Aryan group of languages, this author uses among many other illustrations the root "ar." This he finds in the later Sanscrit in the word **arya**, a tiller of the soil. With the meaning of "to plough," he finds it in the Latin **ar-are**; the Greek **ar-oun**; the Irish **ar**; the Lithuanian **ar-ti**; the Russian **or-ati**; the Gothic **ar-jan**; the Anglo-Saxon **er-jan**; and in the modern English **to ear.** Shakespeare says (Richard II., iii. 2), "to ear the land that has some hope to grow." And in Deut. xxi. 4 we read, "A rough valley which is neither eared nor sown." He further traces this root into the words signifying the plough, or the instrument of earing; such as the Latin **ara-trum**; the Cornish **aradar**; the Welsh **arad**; and many other derivatives. "Even the word **earth,** the Gothic **airtha,** the Anglo-Saxon **eorthe,** must have been taken originally in the sense of ploughed or cultivated land." Taking again the word respectable, he separates from it its root "spac," to look or see, and demonstrates the presence of this root in a vast number of words of the various languages, ancient and modern, which constitute the great Aryan group. These are but two of the numerous examples of roots in the Aryan languages which are given by Professor Müller. He shows that after the most careful analysis of any one of the more highly developed languages of mankind, four or five hundred of such roots are what remain in the crucible; and that from these the thousands of words composing the language are essentially formed. He is very emphatic in his assertion that these roots are predicative, and the signs of general ideas:—Thus the root "mâ" in Sanscrit means *to measure*, from which is derived *moon*, the measurer; "man," a derivative root, means *to think*, and as a noun it therefore means *the thinker;* the *sun* is the begetter; the root "gâ" means going; "sthâ," standing; "sad," sitting; "da," giving; "mar," dying; "*k*ar," walking; "kar," doing. He has some interesting remarks about the struggle for existence which has to be carried on among these roots, when language is being developed. He shows that in the earlier stages of development a language is always very rich in synonyms; for example,—"In common Sanscrit dictionaries, we find five words for 'hand,' eleven for 'light,' fifteen for 'cloud,' twenty for 'moon,' twenty-six for 'snake,' thirty-three for 'slaughter,' thirty-five for 'fire,' and thirty-seven for 'sun.' The sun might be called the bright, the warm, the golden, the preserver, the destroyer, the wolf, the lion, the heavenly eye, the father of light and life. Hence the superabundance of synonyms in ancient dialects, and hence that *struggle for life* carried on among these words, which led to the destruction of the less strong, the less happy, the less fertile words, and ended in the triumph of one, as the recognised and proper name for every object in every language." He says, "The fact that every word is originally a predicate, that names, though signs of individual conceptions, are all without exception derived from general ideas, is one of the most important discoveries in the Science of Language." He is strongly opposed to the doctrine of those who would trace the origin of language to natural interjections uttered under emotion, and to the imitation of natural sounds such as the cries of animals. Though recognising the existence of a few words of onomatopoietic origin in all languages, he thinks these neither numerous nor important. He holds that the *roots* must be regarded as ultimate facts in philology. The only explanation of their origin that he offers is a somewhat mystic one. He says, "All that we have a right to assert is that language begins with roots, and that these roots are neither more nor less than phonetic types or typical sounds. What lies beyond them is no longer, or, if we speak historically, is not yet language, however interesting it may be for psychological researches. But whatever exists in real language is the upshot of these roots. Words are various impressions taken from these phonetic moulds." In indicating how these phonetic types may have first displayed themselves, he says, "If we must look for analogies, however imperfect, they have been pointed out by others. There is a law, it has been said, which runs through nearly the whole of nature, that everything which is struck rings. Each substance has its peculiar ring; we can tell the more or less perfect structure of metals by their vibrations, by the answer which they give. Gold rings differently from tin, wood rings differently from stone, and different sounds are produced according to the nature of each percussion. It is the same, we are told, with man, the most highly organized of Nature's works. Man responds. Man rings. Man in his primitive and perfect state was not only endowed like the brute with the power of expressing his sensations by interjections, and his perceptions by onomatopœia. He possessed likewise the faculty of giving more articulate expression to the general conceptions of his mind. That faculty was not of his own making. It was an instinct, an instinct of the mind as irresistible as any other instinct. Man loses his instincts as he ceases to want them. His senses become fainter, when, as in the case of scent, they become useless. Thus the creative faculty which gave to each general conception, as it thrilled for the first time through the brain, a phonetic expression, became extinct when its object was fulfilled."

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[1] Quoted by Max Müller, *Lectures on the Science of Language*, vol. i. p. 391.

The opinion thus expressed by Professor Müller as to "roots" being ultimate facts in philology, whose origin it is impossible to account for further than in some such vague manner as he suggests, has not met with acceptance among philologists generally. It is strongly opposed by many philologists of eminence, who hold that the development of language, including the development of roots, has been a very gradual process, whose first beginnings can be explained in a natural and comparatively simple manner. This school of philologists, which has been termed the Imitative School, is very strong in Germany. It is represented in this country chiefly by Mr Hensleigh Wedgwood,[1] and the Rev. Archdeacon Farrar.[2] These authors, and the school represented by them, are by no means inclined to accept the dictum of Professor Müller, that roots are ultimate facts in philology. As Mr Farrar puts it, "If we are told that a large family of words come from 'ar,' or 'ga,' or 'sal'; and if about 'ar,' and 'ga,' and 'sal,' nothing more can be said, then what have we learned? The roots are mere mysterious nonentities which have taught us nothing, and come from nowhere. The earth rests on the back of an elephant, and the elephant stands on a tortoise; but what does the tortoise stand upon?" In endeavouring to find what the tortoise stands upon, these philologists accept the conclusion which the Sciences of Geology and

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[1] *A Dictionary of English Etymology*, prefaced by an elaborate introduction.

[2] *Chapters on Language*, 1873, and *Origin of Language*, 1860.

Natural History point to, viz., that man appeared late in the history of the world, and that he was slowly developed from a comparatively humble condition, in which he was probably devoid of any gift of speech properly so called. Mr Wedgwood remarks, "The mere absence of man among an animal population of the world, is felt by no one as repugnant to a thorough belief in the Providential rule of the Creator. Why then should such a feeling be roused by the complementary theory, which bridges over the interval to the appearance of man, and supposes that one of the races of the purely animal period was gradually raised in the scale of intelligence by the laws of variation affecting all procreative kinds of being, until the progeny, in the course of generations, attained to so enlarged an understanding as to become capable of appreciating each other's motives; of being moved to admiration and love by the exhibition of loving courage, or to indignation and to hate by malignant conduct; of finding enjoyment or pain in the applause or reprobation of their fellows, or of their own reflected thoughts; and sooner or later, of using imitative signs for the purpose of bringing absent things to the thoughts of another mind?"

In trying to guess at the means which man, as yet devoid of speech, would employ in expressing his thoughts and emotions to his fellows, the philologists of this school ask themselves:—(1.) What does a man of the present time do in trying to make his wants known, when, in a foreign country, he finds himself amongst those to whom his mother-tongue is unknown? (2.) How do savages eke out the expressive powers of their rudimentary and imperfect languages? (3.) How do deaf-mutes who have not been educated to speak express their thoughts? And (4.) How do children who have not yet learned to speak make their wants known? The answer is that, in all these cases, the language of Facial Expression and Gesture is extensively used; and, except in the case of deaf-mutes, that Emotional Tones or Exclamations are added, as well as, in many cases, Vocal Imitations of natural sounds. Further, this school of philologists examines carefully the languages of savage and civilized mankind. In all cases, they find that an Imitative or Onomatopoietic element is very abundantly represented, more especially, as it would seem natural to anticipate, in the languages of savage peoples, which may reasonably be regarded as representative in some degree of the speech that may have existed in the childhood of mankind.

A few illustrations, taken from the works of Mr Wedgwood, Archdeacon Farrar, and Mr E. B. Tylor, will help to make the position of this school of philologists intelligible to the reader.

1. Mr Wedgwood says that a traveller of the present day, "thrown among people whose language was altogether strange to him, would signify his hunger by pointing to his mouth and making a semblance of eating. Terrified by a bull, he would find

it convenient to make known the object of his alarm by imitating, at once, the movements of the animal with his head, and bellowing with his voice." Referring to the old story of the Englishman in China, who, when at dinner, grew suspicious about a dish placed before him, he shows how naturally the language of onomatopœia suggested itself in that case. Thinking that the dish might be duck, the Englishman said with an interrogative accent, "Quack, quack?" He received the clear and straightforward answer, "Bow-wow."[1]

2. As to the employment of Gestures by savages, Captain Burton says, regarding a tribe of North American Indians, "Those natives who, like the Arapahos, possess a very scanty vocabulary, pronounced in a quasi-unintelligible way, can hardly converse with one another in the dark. To make a stranger understand them they must always repair to the camp-fire for *pow-wow*".[2] Mr Farrar, at p. 39, alludes to the Puris of Brazil, who have to eke out their scanty language by a large use of signs; to the Fuegians, whose language has been described as an inarticulate chuckling; to the forest tribes of Malacca, who lisp their words with sound like the noise of birds; and to the wild Veddas of Ceylon, who have gutturals and grimaces instead of language.

3. The Gesture Language of deaf-mutes is so closely allied to that employed by uncivilized races, that deaf-mutes and savages are easily able to converse with each other by means of gestures. In illustration of this point, Mr E. B. Tylor[3] remarks,—"The best evidence of the unity of the gesture language is the ease and certainty with which any savage, from any country, can understand and be understood in a deaf-and-dumb school. A native of Hawaii is taken to an American institution, and begins to talk at once in signs to the children, and to tell about his voyage and the country he came from. A Chinese, who has fallen into a state of melancholy from long want of society, is quite revived by being taken to the same place, where he can talk in gestures to his heart's content. A deaf and dumb lad, named Collins, is taken to see some Laplanders, who were carried about to be exhibited, and writes thus to his fellow-pupils about the Lapland woman:—'Mr Joseph Humphreys told me to speak to her by signs, and she understood me. When Cunningham was with me, asking Lapland woman, and she frowned at him and me. She did not know we were deaf and dumb, but afterwards she knew that we were deaf and dumb. Then she spoke to us about reindeers and elks, and smiled at us much.'"

4. The early employment of the language of vocal tone, facial expression, and gesture, by young children, has been already treated of in a former paper; and it has also been shown how soon they learn

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[1] The above is Prof. Max Müller's version of the story, not Mr Wedgwood's.
[2] Quoted by E. B. Tylor, *Early History of Mankind*, p. 77.
[3] *Ibid.*, p. 54.

to imitate mechanically the sounds of words, the cries of animals, and other sounds, by the process of echolalia. The philologists of the Imitative School lay stress upon the fact that a child, ordinarily trained, always uses Onomatopoietic terms as its names for animals. **Bow-wow** is learned as the name for a dog, **moo** for a cow, **baa** for a sheep, and **gee-gee** for a horse. Thus the child is trained to know *that a sound may stand for a thing*. "This," says Mr Farrar, "is the most difficult lesson of all language, and when, by the use of a few words, the child has once learned it—when it has once succeeded in catching this elementary conception—the rest follows with astonishing rapidity. Hence very few onomatopœias, and these borrowed from the commonest and simplest objects, are sufficient for the purpose. . . . But how is he to learn this marvellous lesson ? Only by observing instinctively that, since certain things give forth certain sounds, the repetition of the sound, by an inevitable working of the law of association, recalls the object which emits it. Nor is it the slightest objection to this to say that the child does not learn the onomatopœia for itself, but learns it from its nurse. Supposing that we grant this, what does it prove ? Simply the fact that every nurse and every mother is guided by the swift, beautiful, and unerring beneficence of instinct, to follow the very same process which the great mother Nature adopted when man was an infant child; or, let us say, in language more reverent and not less true, that such a process is instinctive, unconscious accordance with the great method of the Creator."

The Imitative School thus hold that, before true speech began to be developed, there was probably a period during which our ancestors expressed their feelings in the language of vocal tone, facial expression, and bodily gesture. They believe that the first suggestions of true speech were obtained from the Imitation of Natural Sounds.

Many of the higher animals, such as fowls, horses, and dogs, are endowed with a power of emitting, when under excitement, certain expressive inarticulate vocal sounds; and in such sounds some of them, such as the dog, can express a considerable variety of emotional feelings. Man possesses this same power in still greater degree. He involuntarily, in many circumstances, expresses his strong emotion by inarticulate vocal exclamation, which may in one case express pain, in another disgust, in another horror, and so on; the expression being in each case associated with appropriate facial expression and gesture. The exclamations thus made, so long as they are inarticulate and involuntary, cannot be ranked, in any proper sense, as words. Soon, however, the discovery is made that these natural exclamations, if repeated voluntarily, are capable of calling back to the human mind the states of feeling that originally produced them; and, further, that, if thus repeated in the presence of others, they are capable of calling up, in their minds also, the same states of feeling. Used in this voluntary manner, these natural exclamations become Interjections. According to the Imitative School, such interjections go to form, in all probability, one of the first rudiments of true speech. In course of time, these interjections inevitably have consonant-sounds added to them, and thus become conventionalized and verbalized; but it must be noted that the added consonants differ much in the languages of different peoples, although the natural inarticulate exclamation that suggested the interjection has been the same in all cases.

One or two examples may be given from the treatise of Mr Wedgwood. Take the interjection "pooh." This, he believes, was originally suggested by the spitting-out of an unsavoury morsel; and he quotes a good deal of evidence to show that this was its real origin. He gives, for example, a quotation from the traveller Leichardt, who met with this mode of expression among the savages of Australia. "The men commenced talking to them, but occasionally interrupted their speeches by spitting and uttering a noise like *pooh-pooh*, apparently expressive of their disgust." He shows further, on the authority of Captain Burton, that certain African tribes use **tooh-tuh** in the same sense, spitting at the same time upon the ground. He finds, in certain other languages, that the word representative of spitting may be used with an initial **p**, as in the Maori **puhwa**, to spit out; or with **sp**, as in the Latin **spuere**, to spit; or with **t**, as in the Arabic **tufl**. He gives many other modifications of it in other languages. He thus shows how differently a natural act, expressive of dislike, may in various languages be translated into an imitative interjection.

To take a second example. The sound of a sigh or groan is, in English, translated into the interjection **ah, ah**; in German it becomes **ach**; in Welsh, **ochan**; and the verb to groan becomes, in German, **achen** or **ächzen**; and so on. Another translation of the sigh he finds in the Latin **Vae**; in the German **Weh,** pain; **Die wehen,** the pangs of childbirth, etc.

He also treats of other interjections, such as **ugh, hush, hist, foch, fie, hem, blurt, pet, trotz,** etc.; indicating the natural sounds that possibly suggested them, and showing how differently they have been translated into different languages.

The second great source of primitive words that has been insisted upon by the Imitative School is the Voluntary Imitation of Natural Sounds, such as the natural cries of animals and the notes of birds (onomatopœia). So long as a child, or the "child-man," repeats these natural sounds in a merely mechanical manner, by echolalia, the natural sound has no claim to rank as a true word; but whenever the child-man began to use the imitation as a means of suggesting the animal, or other source of sound, to the mind of another person, then the imitation began to serve the purposes of a word; and it became an ordinary word when, after repeated use, it was modified and conventionalized by the addition of consonants, which made it more easy of articulation, though less true as an imitation. "Cuckoo" and "Peewit" are familiar words of such a derivation; and so is "Whip-poor-Will" and a host of others. All kinds of natural sounds have thus been reproduced, and are represented in various languages. We talk of "the clucking of hens, cackling or gaggling of geese, gobbling of a turkey cock, quacking of ducks or frogs, cawing or quawking of rooks, croaking of frogs or ravens, cooing or crooing of doves, hooting of owls, bumping of bitterns, chirping of sparrows or crickets, twittering of swallows, chattering of pies or monkeys, neighing or whinnying of horses, purring or mewing of cats, yelping, howling, barking, snarling of dogs, grunting or squealing of hogs, bellowing of bulls, lowing of oxen, bleating of sheep, baaing or maeing of lambs."[1]

Other sounds are imitated by the words "bump, thump, plump, thwack, whack, smack, crack, clack, clap," and a host of others, given at page 28 of Mr Wedgwood's treatise.

Interjections and imitations of natural sounds (onomatopœiæ) are thus evidently the sources of a great many roots and words in every language. Mr Farrar holds that at the present time no radically new word ever has a chance of being permanently adopted in a language, unless it be of onomatopoietic character. Once formed, words of imitative origin are apt to be much changed, by phonetic decay, in the course of their after-history; and in some cases the imitative origin of their decayed descendants is discoverable only by reference to their ancient forms in the same language, or to their existing forms in other languages of the same group. It is suggested that even in words where no evidence of imitative origin can now be discovered, there may be roots that at some far-off time had a form suggestive of that origin, which has been effaced only in the course of ages. It is not maintained by the Imitative School that more than a considerable proportion of existing roots can at present be proved, upon sufficient evidence, to be of imitative origin, but it is believed that further investigation will demonstrate this origin in an increasing number of cases; and, as the roots of each language are, in all, only a few hundreds in number, it is thought to be probable enough that even a majority of them may have originated in this way. Mr Tylor, indeed recommends caution. He thinks that the evidence does not justify "the setting up of what is called the imitative or interjectional theory as a complete solution of the problem of original language. Valid as this theory proves itself within limits, it would be incautious to accept a hypothesis which can perhaps account for a twentieth of the crude forms of any language, as a certain and absolute explanation of the nineteen-twentieths which remain. A key must unlock more doors than this to be taken as the master key."[2] Mr Wedgwood, however, in making this quotation, remarks that this objection does not exactly meet the position held by prudent supporters of the theory in question.

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[1] Wedgwood, *op. cit.*, p. 16.

[2] *Primitive Culture*, i. 208.

Dr G. J. Romanes[1] has made an interesting suggestion as to another possible source of primitive words and roots. He reminds his readers that even civilized children will sometimes "coin a language of their own, in which the element of onomatopœia is barely traceable,"[2] and that uneducated deaf-mutes will sometimes spontaneously devise articulate sounds which they may use as names for their friends, etc., "which sounds are necessarily destitute of any imitative origin." He does not see "why it should be held antecedently impossible that primitive man can have found any other means of word formation than that which is supplied by mimicry."

Mr Farrar objects decidedly to the notion, expressed by Prof. Müller, and apparently common to most philologists, that verbal or "predicative" roots, such as "going, moving, tasting, etc.," were the earliest. This to him is inconceivable. The invention of a verb "requires a greater effort of abstraction than that of a noun, for obviously we must have generalized from individual phenomena before we can express them verbally under the conditions of motion, action, or existence. . . . It requires but the feeblest power of abstraction—a power possessed even by idiots—to use a name as the sign of a conception, *e.g.*, to say 'sun'; to say 'sheen,' as the description of a phenomenon common to all shining objects, is a higher effort; and to say 'to shine,' as expressive of the state or act, is higher still." He thinks the correct view to be that the roots or words first used by the primitive child-man stood for any and every part of speech, as to this day is the case in that language of arrested development, the Chinese. Even in our present English language, as Mr Wedgwood shows, there are many words that can be used indifferently as noun, adjective, verb, adverb, or interjection. A loud **bang** is a noun; **Bang** went the gun! is an interjection; Do not **bang** the door, is a verb; He ran **bang** up against the wall, is an adverb qualifying the verb ran. It is further suggested that the primitive words of the child-man may, aided by the language of gesture, etc., have had each the significance of a short sentence,—like some of the words first used by children of the present day. When a child says "Up" to its mother, with appealing look and out-stretched arms, the single monosyllable stands for the whole sentence, "Please take me up on your knee." When Professor Preyer's boy said "Heiss" as he looked at the stove, he meant to express the opinion, "This stove is hot."

Much discussion has taken place as to the *primum cognitum*, that is, as to the first kind of knowledge of objects acquired by the child, and possibly by the child-man. Is it a knowledge of particular things that ascends, with advancing development, into a general knowledge of their classification or relations to each other; or, on the other hand, does knowledge begin with more general ideas, and descend, in the course of development, into an accurate knowledge of particulars? Both propositions have been supported by learned authorities, but perhaps a compromise between the two views is more in harmony with the real facts of the case than the exclusive advocacy of either. Such a compromise is expressed by Sir Wm. Hamilton (*Lectures on Metaphysics*, ii. p. 327). "As our knowledge," he says, "proceeds from the confused to the distinct, from the vague to the determinate, so, in the mouths of children, language at first expresses neither the precisely general nor the determinately individual, but the vague and confused; and, out of this, the universal is elaborated by generification, the particular and singular by specification and individualization."[1] Thus the young child who has learned to address its father as "Papa" and his mother as "Mama," is at first apt to bestow the same titles upon others of the male and female sex. It is only when it is a little more advanced, that the true "Papa" and "Mama" are distinctly particularized in its mind. It is suggested that possibly the child-man, in beginning to accumulate knowledge about the objects around him, began with notions that were similarly confused and indistinct; and, from these, developed only by degrees towards a clearer notion of the particular and a more comprehensive of the general.

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[1] *Mental Evolution of Man*, p. 291.

[2] See two cases already quoted from his work, in the paper upon Baby-Speech.

But, leaving these difficult questions about the first beginnings of speech and knowledge, about which there is still so much difference of opinion, let us turn to a subject about which there is among Philologists substantial agreement, viz., the classification of languages.

(*To be continued.*)

## III.—A CASE OF UNUSUAL DEFORMITY OF THE HANDS AND FEET CAUSED BY STRUMOUS DISEASE.

By A. M. Stalker, M.D., Physician to the Dundee Royal Infirmary; and David M. Greig, M.B., F.R.C.S. Ed.

George M——, æt. 43 years, mill-worker, married, no children.

*Family History.*—Patient's father died at the age of 48 years of a "chest complaint," and his mother, who had strumous scars on her neck, died at the age of 24 years of phthisis. She had three sisters and two brothers who reached adult life, and all presented various manifestations of scrofulous diathesis. Patient had only one brother, and his condition is specially noteworthy. He suffered from a disease of the bones of the hands and feet, which began when he was 4 years of age. The progress of the disease was slow until the right elbow became affected, and he died at the age of 14 years of exhaustion.

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[1] Quoted by Prof. Max Müller, vol. i., footnote to p. 43.

*Personal History.*—Apart from the changes relating to the patient's present condition, his previous history is unimportant. He has suffered occasionally from bronchitis, which latterly has become chronic.

*History of Present Disease.*—The disease of the hands and feet began at the age of 6 years, the limbs being affected consecutively, but it is impossible to ascertain in what order, though the patient maintains that only two years elapsed from the commencement until they were all affected. The affection was accompanied by considerable pain and some suppuration, and small pieces of bone escaped with the discharges from time to time. His condition, however, has remained unchanged for the past ten or fifteen years, as sketches taken by one of us in 1881 clearly show.

*Present Condition.*—Patient is undersized, looks younger than his years, and is of low mental development. Cicatricial remains of glandular abscesses exist below the jaw on both sides of the neck. His hands and feet present the following curious deformities:—

*Left Hand* (Figs. 1 and 2).—Small and narrow, the narrowing being due to displacement of the middle finger into the palm of the hand. There is a cicatrix of the size of a shilling over the lower end of the radius posteriorly, and a small puckered cicatrix over the dorsal aspect of the scaphoid bone. Neither is adherent to the bone. A lupoid affection of the skin exists on the dorsum of the hand between the second and fourth fingers. There is a small puckered cicatrix just below the pisiform bone on the palmar aspect of the hand, and another over the carpo-metacarpal joint of the thumb. The palm of the hand is convex transversely and from above downwards over the heads of the metacarpal bones, and this is caused by the proximal extremity of the first phalanx of the ring finger, which is displaced into the palm a little to the inner side of the middle line. The thumb is normal, except that flexion is imperfect in the last joint. The metacarpal bone of the index finger is normal. The axis of the index finger is directed much inwards, and movement at the metacarpo-phalangeal articulation is very slight. The middle finger is only seen on looking at the palm. Its metacarpal bone is normal. From the head of the metacarpal bone to the tip of the finger measures 5 centimetres, and the finger measures 5·7 centimetres in circumference at its thickest part. It is marked by three transverse furrows equidistant from each other, which indicate the original divisions of the finger. The finger is surmounted on its ulnar side by a small and much deformed nail, close to which is a cicatrix through which fragments of bone had been from time to time discharged. The osseous portion of this finger is represented by a

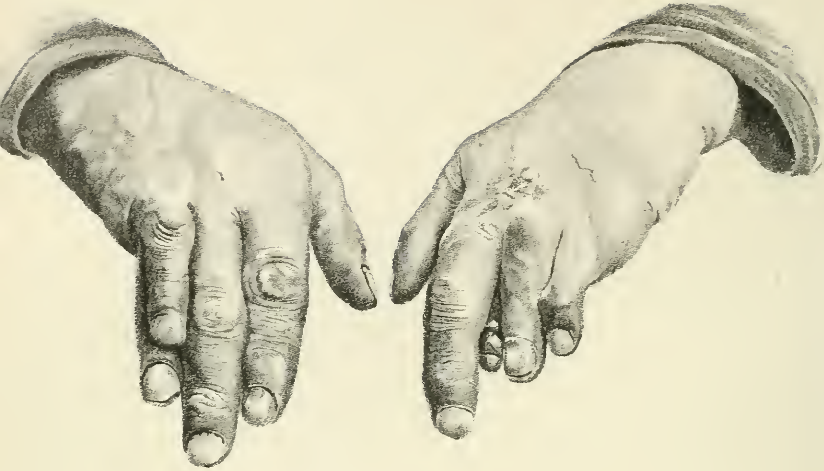

*Fig 1*

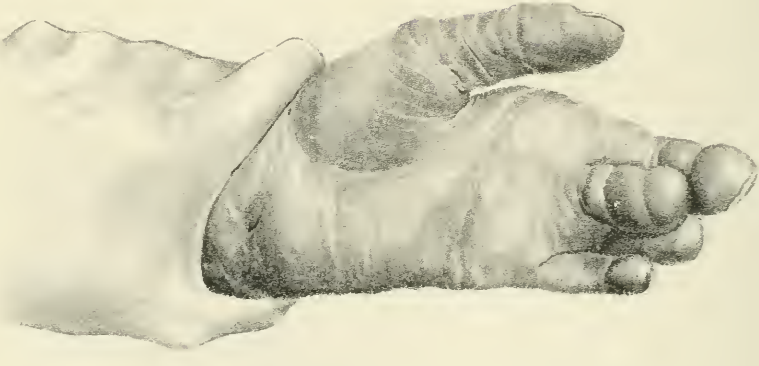

*Fig 2*

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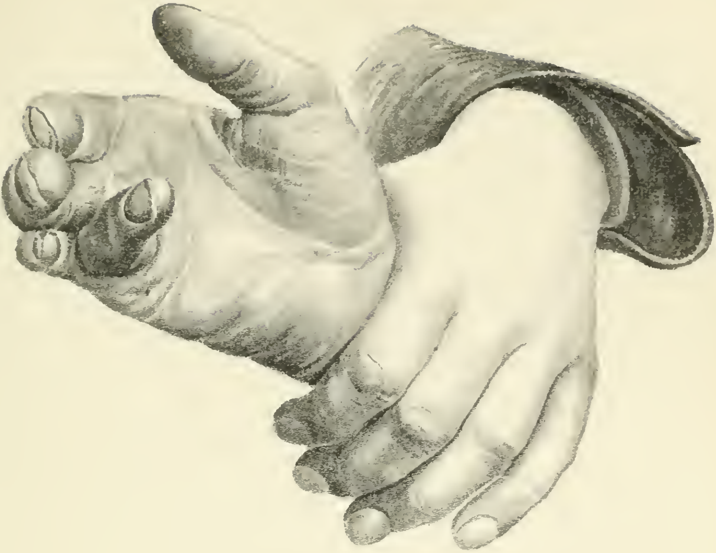

*Fig 3*

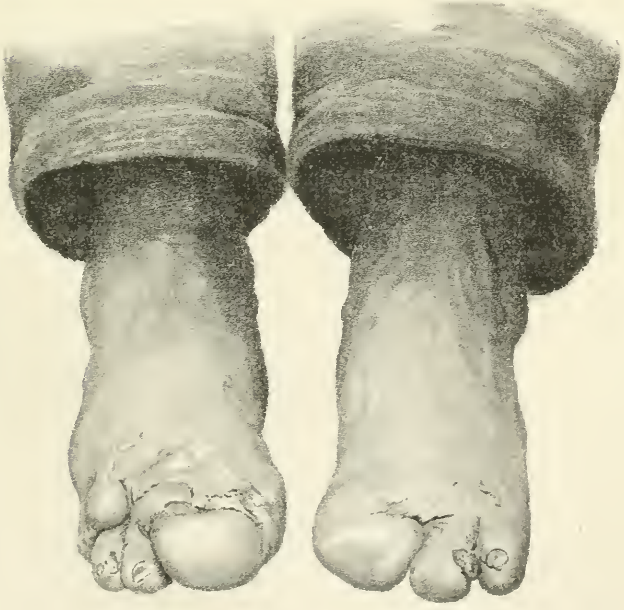

*Fig 4*

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single stem of bone whose distal extremity is rounded, nodular, and thickened. The finger can only be very slightly flexed on the palm. The fourth metacarpal bone is normal, but the first phalanx of the fourth finger is dislocated into the palm, and its axis crosses that of the metacarpal bone obliquely from without inwards. The finger is small and covered with smooth skin, and there is little movement at any of the joints. The fifth finger is drawn backwards, and the last joint is enlarged and fixed in a flexed position.

*Right Hand* (Figs. 1 and 3).—On the dorsum there is a cicatrix over the carpus and some lupoid cicatricial tissue over the bases of the fingers. The third and fifth fingers are approximated so as to hide the fourth finger which is displaced into the palm. The thumb and middle finger are normal, as also are all the metacarpal bones except the fourth. The axis of the index finger is inclined inwards. There is a cicatrix over the fourth metacarpal bone, which is represented by a small osseous mass close to the carpus. There is no osseous connexion between this and the first phalanx of the fourth finger. The base of the first phalanx of the fourth finger is felt dorsally about two centimetres below the line of the other metacarpo-phalangeal articulations. The other phalanges of this finger are normal and their movement good. The base of the first phalanx of the fifth finger is displaced slightly forwards, and the finger is flexed and its first joint immovable.

*Right Foot* (Fig. 4).—There is a lupoid condition of the skin on the dorsum over the bases of the toes. The foot is narrow, and the toes are placed on two planes, the first, third, and fourth being below the second and fifth, which are displaced on to the dorsum of the foot. The head of the fifth metatarsal bone cannot be distinguished, and the base of the first phalanx of the fifth toe is displaced into the sole of the foot, thus throwing the whole toe on to the dorsum. The axis of the fifth toe is directed inwards, and overlaps the fourth and third toes. The second toe forms a small rounded mass between the first and fifth toes, and its anatomy cannot be made out by palpation.

*Left Foot* (Fig. 4).—This foot likewise presents lupoid cicatricial tissue over the bases of the toes. The first, third, and fifth toes alone are visible. The second metatarsal bone can be felt throughout its whole extent, and the second toe is represented by a fleshy nodule placed dorsally over the base of the great toe. The fourth metatarsal bone cannot be made out, but there is a tender protuberance on the plantar aspect of the foot between the third and fifth toes. This is evidently the representative of the fourth toe, and contains two small shafts of bone slightly movable on each other.

*Remarks.*—Apart from the very striking deformities which the patient presented when he first came under our notice, our attention was attracted by the peculiar symmetry of the lesions. The four extremities were affected—each, generally speaking, in a similar manner. In the hands, the thumbs, and in the feet, the great toes, were not affected. The index finger of each hand was slightly affected, and that only by contraction of the neighbouring parts on the ulnar side. Cario-necrosis of the bones of some of the fingers and toes, as detailed above, resulted in the disappearance of entire bones, and in the left foot, of two complete toes, and in connexion therewith the absence of cicatrices through which large pieces of bone could have passed is noticeable. The further changes consisted in both hands and feet of a lupoid affection of the skin, followed in some places by cicatrization and contraction. From this contraction of the cicatricial tissue and from the disappearance of bones resulted a marked diminution in the size of the limbs, especially from side to side. The appearance so produced was strongly suggestive of some atrophic influence, and caused us to search most carefully for a nervous lesion, which might in part account for the peculiar phenomena. This we failed to discover, and from the presence of a strong hereditary tubercular taint of the chronic strumous type, we were forced to the conclusion that strumous processes alone had sufficed to bring about these deformities.

## IV.—SURFACE ANATOMY OF THE SUPERFICIAL NERVES.

By J. Purves Stewart, M.A. Edin., Student of Medicine.

(*Read before the Royal Medical Society*, 11*th December* 1891.)

The importance of surface anatomy is now so universally recognised, and the science itself is being so carefully elaborated, that no apology, I think, is necessary for calling attention to several facts with regard to the surface anatomy of certain nerves in the human body, more especially as this department of the subject appears to have been somewhat neglected by most writers—for example, the works of Gray, Holden, Quain, Ranney, Shield, Treves, and Windle. In none of these is there any regular and systematic reference to those nerves which can be detected by inspection or external manipulation, and in most works they are entirely ignored.

The positions of many of the larger nerve-trunks in the body are tolerably well known even to those outside the medical profession. The ulnar nerve, under the name of "funny bone," is a household word, sciatica is a popular complaint, whilst the easily accessible situation of the musculo-spiral nerve on the outer side of the arm is fully appreciated by policemen, rendering that part of the body a favourite object of attack. The singular prevalence of "drop-wrist" amongst prisoners in police courts may be instanced as a proof of this. The sciatic nerve can be and often is compressed by sitting in an uncomfortable position upon a hard seat with a prominent margin, and compression of the external popliteal nerve below the head of the fibula, by sitting with one knee crossed over the other, produces what is called a "sleeping foot."

With regard to those nerves which cannot be felt distinctly in the living body I have nothing here to say. The method of investigation I have pursued has been simply that of inspection and palpation, either with the pulp of the finger, or, in some cases where more delicate observation was necessary, by the finger-nail. Results so obtained may often be verified in other ways,—as, for example, in the popular experiment of placing a piece of ice on the front of the wrist, when, after a little while, an intolerably cold sensation is felt in the situation of the median nerve. Again, electrical stimulation may be employed, or even pressure, as in the case of the ulnar nerve where reflex contraction of the palmaris brevis can be readily induced. By these simple means the busy practitioner can, on his own body, refresh his knowledge of the anatomy of many nerves. Possibly also in some cases these methods may be found of clinical importance.

Some of the most prominent examples of nerves close to the surface have already been mentioned; others are familiar to the surgeon. The supra-orbital, infra-orbital, and mental nerves are all recognised by means of the respective foramina through which they emerge. A buccal branch of the seventh cranial nerve can also be found running below and parallel with Stenson's duct, a little below the zygomatic arch. The situation of the nasal nerve, too, emerging between the nasal bone and the lateral nasal cartilage, is taken advantage of in the endeavour to prevent the act of sneezing by clutching firmly at one's nose.

What, however, is not sufficiently appreciated is the fact that almost every nerve of any size which crosses a rigid superficial structure, such as a bone, a tendon, or a cartilage, can be felt in that part of its course.

*Head and Neck.*—The supra-trochlear and supra-orbital nerves can be readily felt by running the finger-nail along the sharp upper rim of the orbit. A few malar branches of the temporo-malar, though very small, can sometimes be felt on the surface of the malar bone. Several large nerves are readily felt ascending over the zygoma,—these are branches of the facial; whilst farther back, just in front of the ear, the small auriculo-temporal can be made out. Pressure on the auriculo-temporal gives rise to painful sensations in the area of its distribution. The infra-orbital and mental nerves can also be felt after their exit from their respective foramina. On carefully feeling along the back of the pinna, several small nerves can easily be found. These are chiefly branches of the posterior auricular, with a few filaments from the auricular branch of the vagus (Arnold's nerve). It is, of course, quite impossible to discriminate between these two nerves. The great and small occipital nerves can be felt where they cross the superior curved line of the occipital bone,—the small occipital, very distinct, about an inch behind the mastoid process, in a line with the posterior border of the sterno-mastoid; the great occipital, less prominent, nearer the middle line.

By introducing a finger into the mouth, the gustatory or lingual branch of the fifth cranial nerve can be felt below and behind the last molar tooth of the lower jaw, and it has been divided in this situation in order to relieve the pain of cancer in the tongue.

In the neck, nerve-trunks cannot be felt because of the soft parts beneath which they lie, although it is recorded of a certain professor of anatomy that by compressing his vagus against his cervical vertebræ he could inhibit his heart! Probably, however, few even amongst professors of anatomy would now care to try this experiment.

The trunks of the brachial plexus, in the lower part of the posterior triangle of the neck, can be readily compressed against the vertebral column.

*Upper Extremity.*—When we pass down to the clavicle and scapula, numerous nerves can be felt with great distinctness crossing these bones. Those in front are the descending cutaneous branches, sternal, clavicular, and acromial, of the cervical plexus. Running transversely outwards, and crossing the spine of the scapula very obliquely, a few filaments from the posterior primary divisions of the upper dorsal nerves may sometimes be made out.

The principal nerves of the brachial plexus can be readily felt in several positions in the axilla, upper arm, and forearm. Several cutaneous filaments are found in front of both condyles of the humerus, and can be traced for some little distance down the forearm if the subjacent muscles be clenched. Crossing obliquely the back of the lower end of the ulna, the dorsal cutaneous branch of the ulnar nerve can generally be made out. When we come to the hand, the curious fact is to be noticed that certain of the nerves can not only be felt, but in the average hand their positions may actually be seen.

Extend and abduct the thumb very strongly, so as to put on the stretch the tendon of the extensor secundi internodii pollicis. On looking carefully along the ridge thus formed, the straight line of the tendon is seen to be broken by several little rounded elevations, which in some hands are very distinct. On pressing with the finger nail upon these little hillocks, nerves are at once felt, and if the pressure be strong enough a tingling sensation is sent along the backs of those fingers corresponding to the distribution of the radial nerve. One or two branches of the radial vein sometimes also cross the tendon, and if engorged may be a source of fallacy, as they too may form prominences along the tendon. The veins and nerves, however, can be distinguished by pressure upon them, when the nerves are recognised by their hard, "stringy" feel, whilst the veins are quite soft. Again, by constricting the wrist and at the same time clenching the fingers, the veins are seen to dilate, whilst the elevations formed by the nerves remain as before.

In most hands, even the digital nerves can be distinctly traced along the sides of the fingers as far as the last inter-phalangeal joints.

*Lower Extremity.*—By pressing firmly in the hollow between the great trochanter and the ischial tuberosity, but nearer to the latter, the sciatic nerve can be felt through the gluteus maximus, and may be compressed against the tuberosity of the ischium or great sacro-sciatic ligament.

The positions of the various cutaneous nerves which cross the iliac crest are usually to be readily made out. In the region of the knee, too, when this joint is strongly flexed, several nerves going to the patellar plexus can often be felt and sometimes seen crossing the prominent outer lip of the trochlear surface of the femur. On the front of the patella itself one or two fairly large nerves can generally be felt, a horizontal branch being the most prominent.

The situation of the external popliteal nerve, which can be easily felt internal to the tendon of the biceps, and again below the head of the fibula, has been already referred to. Coursing vertically downwards over the internal tuberosity of the tibia, the long saphenous nerve is readily found. Behind the internal malleolus the large posterior tibial nerve is too deeply placed to be recognised distinctly, but the short saphenous can always be felt very easily behind the external malleolus and crossing the external lateral ligament of the ankle. The anterior tibial nerve, which is external to the corresponding artery at the bend of the ankle, cannot be distinctly felt, since it is beneath the strong deep fascia, which it does not pierce until near the web of the toes. The musculo-cutaneous, however, can always be felt on the front of the fibula in its lower part and its branches traced across the tendons on the dorsum of the foot. In very many cases these branches can be seen forming a distinct series of ridges under the skin.

In conclusion, it may be mentioned that in the dead body the majority of the nerves referred to become much more distinct than during life. This is perhaps due to collapse of the loose subcutaneous connective tissue, causing the dense perineurium of the nerves to stand out in bolder relief.

## V.—THE SPINAL COLUMN IN THE INFANT.

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A study of the anatomical characters of the vertebral column in the infant makes it clear that the spine is then in a transition stage. It has lost some of the features which were peculiar to it in the fœtus, and it has not yet taken on all the characters which it possesses in adult life. It is, therefore, of vital importance to the pediatric physician and surgeon to ascertain these age-differences, and to bear them in mind when studying the causation of spinal disease in early life, and its treatment, prophylactic and curative.

The statements respecting the measurements, curves, ossification, etc., of the infant's spine which are found in this communication are chiefly based upon the study (by the frozen sectional method) of a 6½, a 7½, and an 8½ months' fœtus, and of two full-time infants, and upon the examination of four skeletonized fœtuses and infants, and the dissection of several fresh specimens.

*The Length of the Spine and of its Regions.*—The great relative length of the vertebral column is very marked in the fœtus during the earlier months of intra-uterine life, when the limbs are little more than buds from the trunk. As the full term of pregnancy is approached this disproportionate length of the spine is modified; so that in the new-born infant the vertebral column bears very nearly the same proportion to the total height as in adult life, and this is due, not to the length of the lower limbs, but to the large size of the head. In a male fœtus (A), whose age was 6½ months, the spine measured 14·1 cms., and the whole body from vertex to heel 34·5 cms. in length; in an 8½ months' male fœtus (C) the corresponding measurements were 16 cms. and 43·5 cms.; in a full-time male infant (B) they were 23 cms. and 56 cms.; and in a large full-time female infant (D) they were 24 cms. and 58·5 cms. respectively. These measurements were all made in the case of frozen infants in whom the cartilaginous element in the spine was present. The measurements of skeletonized infants give results which, although not free from fallacy, were practically identical with those above mentioned. Thus, in the case of four full-time, or nearly full-time fœtuses that had been skeletonized, the average length of the body was 42·75 cms., and that of the spine 15·95 cms. It may be concluded, therefore, that during the two last months of intra-uterine life the length of the body is about two and a half times that of the spine.

When the relative lengths of the various regions of the spine (cervical, dorsal, lumbar, and sacro-coccygeal) are inquired into, it is found that both the fœtus and the full-time infant exhibit differences when compared with the adult state and that found in children of various ages. In the case of a 6½ months' male fœtus (A) the cervical and lumbar regions were found to be practically equal in length (2·7 cms. and 2·8 cms.); in a 7 months' fœtus they were exactly equal (3 cms.); and in an 8½ months' fœtus (C) they were nearly the same (3·5 cms. and 3·3 cms.) In the case of full-time infants it was found that the lumbar region exceeded the cervical in length: thus, in two infants, a male and a female (B and D), the measurements of the cervical and lumbar regions were

4·4 and 5·4 cms., and 4·6 and 5·1 respectively; and in three skeletonized infants that were nearly full time the figures were 2·8 and 3·7, 2·5 and 3·7, and 2·5 and 3·5 cms. respectively. It was found, therefore, that as the fœtus neared the full term of intra-uterine life the lumbar region grew in length more quickly than the cervical, and that in the new-born infant the former region was distinctly longer than the latter. In the adult the lumbar is to the cervical region as 3 : 2. There is, therefore, a more rapid growth of the lumbar portion of the spine as compared with the neck in the two or three last months of fœtal life and in childhood. This conclusion differs in one detail from that arrived at by Aeby, Cunningham, Symington, and others.

Aeby, in his paper on the "Age Differences in the Human Spine" ("Die Altersverschiedenheiten der menschlichen Wirbelsäule," *Archiv f. Anat. u. Entwickelungsgeschichte*, 1879, pp. 78-138), states that the cervical and lumbar regions of the spine are practically equal in length in the new-born infant; Cunningham comes to a similar conclusion; and Symington, from the study of frozen sections of four full-time infants, finds that the cervical part of the spine is very nearly equal in length to the lumbar. My measurements would seem to show that in the later months of fœtal life the growth of the lumbar portion of the spine has already begun to surpass that of the cervical, so that at the time of birth these regions are not equal in length, but the lumbar is distinctly longer than the cervical.

It is needless to specify minutely the relationship to each other of the lengths of the other regions of the spine, but a glance at the following table will give a general idea of the whole subject:—

| Age of Fœtus. | Total Height. | Length of Spine. | Length of | | | |
|---|---|---|---|---|---|---|
| | | | Cervical. | Dorsal. | Lumbar. | Sacro-coccygeal. |
| 6½ months' male fœtus (frozen), A, . . . | 34·5 | 14·1 | 2·7 | 5·8 | 2·8 | 2·8 |
| 7 months' fœtus (skeleton), (1), . . . . | 39 | 13·5 | 3·0 | 5·5 | 3·0 | 2·0 |
| 8½ months' fœtus (frozen), C. . . . . . . . . | 43·5 | 16 | 3·5 | 6·5 | 3·3 | 2·7 |
| Full-time fœtus (skeleton), (2), . . . . | 43 | 16·6 | 2·5 | 7·1 | 3·5 | 3·5 |
| Full-time fœtus (skeleton), (3), . . . . | 43 | 16·7 | 2·8 | 6·7 | 3·7 | 3·5 |
| Full-time fœtus (skeleton), (4), . . . . | 46 | 17 | 2·5 | 7·2 | 3·7 | 3·6 |
| Full-time male fœtus (frozen), B, . . . | 56 | 23 | 4·4 | 8·9 | 5·4 | 4·3 |
| Full-time female fœtus (frozen), D, . . . | 58·5 | 24 | 4·6 | 9·3 | 5·1 | 5·0 |

In the case of the frozen fœtuses I have calculated out the percentage lengths of the various regions of the spine with the following results:—

| Age of Fœtus. | Percentage Length of | | | |
|---|---|---|---|---|
| | Cervical. | Dorsal. | Lumbar. | Sacro-coccygeal. |
| 6½ months (A), . . | 19·1 | 41·1 | 19·8 | 19·8 |
| 8½ „ (C), . . | 21·8 | 40·6 | 20·6 | 16·8 |
| Full-time (B), . . | 19·1 | 38·6 | 23·4 | 18·6 |
| Full-time (D), . . | 19·1 | 38·7 | 21·2 | 20·8 |

From this table it will be seen that both in the later months of fœtal life and at the full term the dorsal region of the spine is about twice as long as the cervical; that in the case of fœtuses of 6 or 8 months the cervical and lumbar regions are practically equal in length, there being slight variations, sometimes the lumbar, sometimes the cervical being the longer of the two; that in the full-time infant the lumbar region always exceeds the cervical in length; and that in both the fœtus and full-time infant the sacro-coccygeal region varies much both absolutely and when compared with the other regions. In the case of skeletonized fœtuses and infants the same general results are found; but the changes caused by the shrinking of the cartilaginous and fibrous structures of the spine prevent such measurements from being so reliable as those made upon frozen sections. The percentage lengths of the various regions in the skeletons are appended in tabular form:—

| Age of Fœtus. | Percentage Length of | | | |
|---|---|---|---|---|
| | Cervical. | Dorsal. | Lumbar. | Sacro-coccygeal. |
| 7 months (1), . . . | 22·2 | 40·7 | 22·2 | 14·8 |
| Full-time (2), . . . | 15·0 | 42·7 | 21·0 | 21·0 |
| „ (3), . . . | 16·7 | 40·1 | 22·1 | 20·9 |
| „ (4), . . . | 14·7 | 42·3 | 21·7 | 21·1 |

The observations of Aeby, Rasenel, Dwight, Symington, and Cunningham, show that during childhood and youth the adult proportion between the length of the cervical and that of the lumbar region is being gradually approached (*v.* Dwight and Rotch, *Archives of Pediatrics,* viii. p. 161).

*The Flexibility and Curves of the Spinal Column.*—In the fœtus and young infant the vertebral column is very flexible. Every one who has handled a baby must have observed this fact. Dwight and Rotch (*Archives of Pediatrics,* viii. p. 161) have experimented upon the degree of flexibility, and from personal observation I can confirm their results. They found that if the abdominal wall was cut through, and the abdominal viscera removed, the infant's head could be bent back so as to touch the buttocks, and that if the head and limbs were taken away and the ribs divided, the atlas vertebra could be made to touch the coccyx. They also ascertained that the middle portion of the spine was the most flexible part, and that the column could with equal readiness be bent forwards and laterally. It is, however, unnecessary to mutilate the infant's body in order to demonstrate the flexibility of the spine, for in the case of an intact specimen the head and heels can be bent backwards till they touch. The great ease with which an infant's spine can be bent is due to peculiarities in the spine itself, as will be immediately pointed out; but it is also in great measure permitted by the weakness of muscular action at this early period of life. In fact, the great flexibility of the cervical region is very largely due to weak or inco-ordinated muscular action. In connexion with this matter, the method of articulation of the head to the vertebral column is worthy of study. The occipito-atlantoid joint is not one calculated to allow much movement; and when the infant's head is flexed or extended the occiput moves only to a slight extent upon the atlas vertebra, the principal movements occurring at the cervical articulations. Now, if an examination be made of the articulation between the condyles of the occiput and the lateral masses of the atlas, the reason of the small degree of mobility here possible is made manifest. The condyles of the occiput are nearly flat at birth, and there is hardly any trace of that convexity (antero-posterior and lateral) which exists in later life. The articular surfaces upon the atlas also are flatter than in the older child, and the degree of movement between them and the facets on the occiput must necessarily be limited. The occipital condyles measure from 1 to 1·3 cm. in length, and from ·5 to ·6 cm. in breadth, and lie chiefly upon the ex-occipitals, only a small part anteriorly belonging to the basi-occipital part of the bone. In later life the condyles become more curved, and are consequently better adapted for extensive movement. Cleland (*Anatomical Memoranda*, vol. i. p. 18) describes specially two changes in the form of the occipital condyles which occur after birth,—the one is the curving of the articular surfaces, the other is the growth of a wedge of bone in front of each condyle, which serves the purpose of preserving the balance of the head whilst the face and fore part of the brain are increasing in a relatively greater degree than the cranium and posterior part of the brain.

With regard to the curves of the vertebral column in the fœtus at an early stage of development, there is one general bending with an anterior concavity; later the sacral promontory appears, and there arise two curves, one below and one above the promontory, each with its concavity directed forwards. In case A (the 6½ months' fœtus) these two curves are well demonstrated; the upper is, as we should expect, the more marked (Plate I., A). In the case of the infant at birth, it is usually stated that there is a curve with anterior concavity in the dorsal region. Now, the making of frozen sections has demonstrated the fact, that the position in which the body is placed is a most important factor in the production or in the abolition of spinal curves both in the infant and in the adult, but more especially in the case of the former.

The differences in the character of the spinal curves in the case of infants that have been frozen in different positions are shown in Plate I. In case A (the 6½ months' fœtus) the body was placed in the freezing mixture in the dorsal posture, the head was slightly flexed, and the lower limbs were markedly extended. It is found that, whilst the cervical part of the spine runs practically vertical, there is a well-marked dorsal curvature with anterior concavity. The extension of the lower limbs has caused a distinct forward projection of the lumbar and sacro-coccygeal portions of the vertebral column. This gives to the promontory of the sacrum an apparently great degree of prominence, for it is really the lower lumbar vertebræ that cause the projection. In case C (the 8½ months' fœtus) the body was frozen in the dorsal posture, with the head flexed to a slightly greater degree than in case A, and with the thighs flexed, abducted, and rotated outwards to a small degree. It is found that in this case the whole spine is nearly vertical. There is a faintly marked sacral promontory, a very slight anterior concavity in the lumbar and lower dorsal regions, and a sacro-coccygeal anterior concavity. The upper part of the spine may be said to be vertical, with a slight inclination forwards in the cervical region (Plate I., C).

In case B, a full-time male infant, the head was fully flexed upon the chest during the freezing process; and the thighs were flexed upon the abdomen, abducted, and rotated slightly outwards. There is in this instance a marked cervical curve with its concavity forwards, and this is continuous with a similar curve in the upper dorsal region. In the lower dorsal and in the lumbar region the spine projects slightly forwards. The sacral promontory is not pronounced. The usual sacro-coccygeal anterior concavity is present (Plate I., B).

In case D, a large full-time female infant, the body was placed in the freezing mixture in the genu-pectoral position, and in consequence of this a marked change in the character of the spinal curves has been produced. On account of the posture the sacral region formed the highest part of the spine, and from the sacral promontory the vertebral column ran in almost a straight line towards the infant's head, inclining at the same time towards the anterior aspect of the body. The indication of a cervical curve with anterior convexity is found in the region of the neck, and this is manifestly due to the extended position of the head during freezing. There is also a faint trace of an upper dorsal curve with anterior concavity. The sacro-coccygeal curve is well marked (Plate I., D).

From the study of these sections it is evident that in the spine of the infant there are no fixed curves, save that produced by the promontory of the sacrum and the backward inclination of that bone. The curves that are present in the frozen section of the vertebral column are due to the position and attitude of the body during freezing. The spine can be made practically straight by slightly flexing the head, and by partially flexing the thighs upon the abdomen, the body being in the dorsal posture. A curve with anterior concavity can be produced in the cervical and upper dorsal regions by strongly flexing the head. A lumbar curve with anterior convexity can be made by fully extending the lower limbs upon the trunk. A cervical curve with anterior convexity, which may also affect the upper dorsal region, may be produced by strongly extending the head, *e.g.*, when the body is in the genu-pectoral position. Abduction and outward rotation of the lower limbs would seem to cause a curve with convexity directed towards the front in the lower dorsal and in the lumbar region. The variability of the curves of the infantile spine is thus abundantly proved, and fixed curvatures do not appear till some time after birth. Balandin is of opinion that a cervical curve with anterior convexity begins to be formed at the third month of extra-uterine life, when the infant begins to sit up in the nurse's arms; but Symington thinks that the cervical curve is never consolidated, and states that it can, even in the adult, be obliterated by strong flexion of the head upon the chest. In the infant, at any rate, the cervical part of the spine may have an anterior convexity or concavity given to it by extending or flexing the head upon the thorax. A dorsal curvature with concavity forwards is usually found at birth; but, as has just been shown, this curve cannot be looked upon as constant, for it can be altered by changing the position of the infant; it is usually present, because the infant usually is found lying in an attitude of flexion. Balandin states that when the child begins to walk a lumbar curve with anterior convexity appears, but that this is not consolidated till adult life; and this is no doubt the case. The lumbar curve, like the cervical and dorsal, may be straightened out during infancy. A sacro-coccygeal curve with its concavity directed forwards does exist at birth, and is permanent; but in exceptional cases the sacrum and coccyx are directed downwards and backwards in a straight line, and in these cases there is often an abnormality in development, shown by the presence of what is called the "post-anal dimple." The production and fixing of the spinal curves are probably due in great measure to muscular action.

*The Ossification of the Spinal Column.*—The infant's spine is light and flexible, because it is not completely ossified, because it has still a considerable quantity of cartilage entering into its composition. Its flexibility is due also to another cause, which has been mentioned already. Little need be said about the degree of ossification found in the spine at the time of birth, for my observations generally confirm the statements found in anatomical text-books. At birth there are three primary centres of ossification found in each vertebra,—one for the body, and two lateral centres for the arches and processes. It is usually stated that the lateral centres are not united posteriorly at birth; but in several specimens I found bony union posteriorly—in one or two cases extending even into the spinous processes. The lateral centres are separated from the central centre for the body of the vertebra by cartilage—the neuro-central suture.

Such is the general plan of spinal ossification, but in certain vertebræ there are differences. The atlas vertebra has its anterior arch cartilaginous at birth; and it has two centres, one for each lateral mass, which unite posteriorly about the third year of life. In the case of the axis vertebra there exist at birth one centre for the body and two lateral centres for the arch and processes; but there are also two primary lateral centres for the odontoid process, which are often found fused together in the full-time infant. No trace of an apical epiphysary centre for the tip of the odontoid process is found at birth. The body and odontoid process of the axis are separated by cartilage at birth; they are said to unite at the age of three years, but probably union is incomplete till a much later date. D. J. Cunningham (*Jour. of Anat. and Phys.*, vol. xx. p. 238) goes so far as to state that the cartilage between the body and odontoid process does not disappear till old age, and supposes that authors have been misled upon this point by the peripheral ossification.

At birth the five parts of the sacrum usually show one central and two lateral primary centres in each; but the coccyx is then, as a rule, entirely cartilaginous, the centre for the first coccygeal vertebra appearing shortly after birth.

At the fourth month of intra-uterine life, *the spinal cord* occupies the whole of the vertebral canal; but thereafter the cord grows less quickly than the canal, and is at the time of birth found to terminate at the level of the first lumbar vertebra. The part of the spinal canal lying below this vertebra is occupied by the leash of nerves and the filum terminale, which together constitute the cauda equina. The relation of the spinal cord to the vertebral canal in the new-born infant does not differ from that found in the adult, but in premature infants and in fœtuses the commencement of the cauda equina is at a lower level than in the new-born full-time infant and in the adult.

A few words may now be said with regard to the spinal column in an *anencephalic fœtus* (Plate I., E). The specimen, which was one of well-marked anencephalus in an eight months' fœtus, was frozen in the dorsal posture with the thighs half flexed upon the abdomen and the arms lying by the side; there was no abduction nor rotation outwards of the thighs. The whole of the dorsal, along with the upper part of the lumbar region, forms a curve with anterior concavity; the lower lumbar vertebræ form together with the first sacral a well-marked promontory, and there is the usual sacro-coccygeal curve. The cervical part of the spinal column presents an interesting abnormality. The spine in the region of the neck turns sharply backwards, forming a curve with anterior convexity, the result being that a line dropped vertically from the tip of the odontoid process passes posteriorly to every part of the spine. There was spina bifida in the cervical region in this case, the arches and spines of all the neck vertebræ being absent. The curious curving of the cervical region of the spine in this case serves to explain how it is that anencephalic fœtuses appear to have no neck. The cervical part of the spinal column is not small, but from its curvature the neck appears to be very short, and the face comes to be approximated to the sternum. From the approximation of chin to sternum, the skin is found to pass from the one to the other without dipping down between them. On dividing the skin the chin can be easily separated from the chest. This fact I have noted on several occasions when dissecting anencephalic fœtuses. The backward inclination of the cervical spine in these cases is probably due to the condition of spina bifida which exists, and also to the abnormal ossification of the basis cranii. The odontoid process in this specimen was in close contact with the basilar part of the occiput; there was no foramen magnum, and the anterior part of the atlas was in all probability fused with the odontoid process, giving to the latter its disproportionately large size.

The segments forming the spinal column were in this anencephalic fœtus unusually well ossified for the age of intra-uterine life attained. Of course, the cervical region offers an exception to this statement as regards the arches and spines, which are absent in that part; but the rest of the spine shows a degree of ossification greater than that usually found in a full-time infant.

The length of the spine was 21 cms., and that of the whole body 38 cms. The disproportionately great length of the spine was manifestly due to the absence of the cranial vault. The length of the various regions were as follows:—cervical, 3·7 cms.; dorsal, 8·3 cms.; lumbar, 4·5 cms.; and sacro-coccygeal, 4·5 cms. The fact that the lumbar region is nearly 1 cm. longer than the cervical is another proof that the spine in this case, notwithstanding the condition of spina bifida, is well developed for the age of fœtal life to which the infant had attained.

One or two of the *general conclusions* to which a study of the spinal column in infancy leads us may now be mentioned:—

1. The total length of the body of the infant at birth is about two and a half times that of the spine. This is due not so much to the lower limbs, which are relatively short, but to the head, which is large at this time of life.

2. In the case of premature infants (six or eight months' fœtuses) the cervical and lumbar regions of the spine are practically equal in length; but in well-developed, full-time infants the lumbar part of the vertebral column is longer than the cervical, although not so much longer as it is in adult life, when the lumbar spine is to the cervical as 3 to 2. (In the infant the proportion is approximately as 5 to 4.)

3. In the infant the spine is very flexible, and this flexibility is due not only to the imperfectly ossified condition of its segments, but also to the weak muscular action at this age.

4. There are no fixed curves in the infant's spine save that caused by the slight projection of the sacral promontory; those that are seen in frozen sections are due to the position of the body during freezing, and vary with the changes which the position may undergo.

5. Whilst there are no *fixed* curves in the spinal column in the infant, a general curvation of the spine above the sacral promontory usually exists (as it did also in fœtal life), and this has an anterior concavity (kyphosis).

6. If the bones be unusually soft and the muscles weak (as in rickets), and also if the infant be encouraged to sit up at too early an age, this natural and temporary infantile kyphosis may become pathological and permanent. Under similar conditions other wrong curvatures of the spine may also be produced.

7. In the new-born infant the characters of the facets of the occipito-atlantoid articulations are not such as to permit of safe and extensive movements.

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### DESCRIPTION OF PLATE.

Representations of the spine from frozen sections of various infants. The bodies of the vertebræ are the only parts shown.

A. Spinal Column of a 6½ months' male fœtus.
B. „ „ full-time male infant.
C. „ „ 8½ months' male fœtus.
D. „ „ full-time female infant.
E. „ „ 8 months' anencephalic fœtus (female).

D.V. = Dorsal vertebra. L.V. = Lumbar vertebra. S.V. = Sacral vertebra.

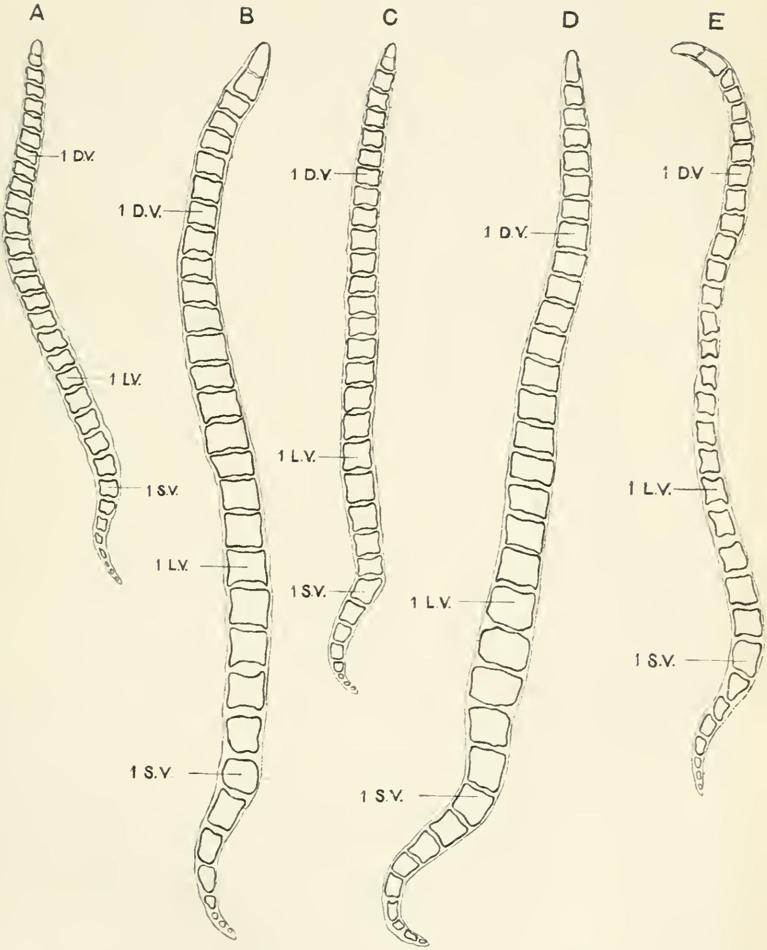
## VI.—INTUBATION OF THE LARYNX IN LARYNGEAL DIPHTHERIA, WITH NOTES OF FIFTEEN CASES.

By G. HUNTER MACKENZIE, M.D., Surgeon for Diseases of the Throat and Nose to the Eye, Ear, and Throat Infirmary of Edinburgh; late President of the British Laryngological and Rhinological Association.

(*Continued from page* 723.)

CASE XIII.—Boy, aged 4½ years, under the care of Dr Miller, Newhaven. *4th April* 1891.—This boy was reported as having been apparently quite well until early in the morning of the 4th. At 10 P.M. his temperature was 103° F., pulse 150. Numerous coarse râles were audible in the windpipe; respiration was greatly embarrassed, expiration being rather more impeded than inspiration, and pulmonary complications were probably present. Paresis of sensation had developed. Intubation was performed at 11 P.M. under most unfavourable conditions; and although the breathing was relieved, the moist laryngeal râles still continued. There was great general collapse. The patient during the night was nourished by enemata, but he never rallied, and died at 5 A.M. on the following day. Shreds of diphtheritic membrane were found attached to the tube.

Plate I.



W^m CATHIE DEL ET LITH.

In this case the development of the disease was exceptionally rapid and intense, and the general collapse and prostration at the period of intubation, which continued to the end, were so marked as to render the case hopeless from the first. Death appeared to be due rather to the general than to the local conditions—probably to a combination of both.

Case XIV.—Boy, aged 20 months, under the care of Dr Henry Hay. *6th April* 1891.—The child was supposed to have burnt his throat in attempting to swallow a portion of a hot potato. On the day preceding this accident, however, he had been observed to be somewhat "croupy," and now there was commencing laryngeal dyspnœa. Intubation was accordingly performed at 10.30 p.m. No. 2 tube (O'Dwyer's scale) was first tried, but this proved too large, and could not be inserted into the larynx. No. 1 was therefore inserted. The breathing was markedly, but not entirely, relieved. *7th.*—Has drunk freely of brandy and milk during the night without difficulty. The tube was withdrawn fifteen hours after insertion, and as the breathing thereafter continued good, it was not replaced. A shred of membrane was found attached to the tube. *10th.*—The child now breathes freely, but is very weak. *12th.*—Breathing all right, and the patient is apparently somewhat stronger.

This child recovered from the operation, but shortly afterwards became the subject of an unusual complication. On the 20th April I was again asked by Dr Hay to see the case. A large abscess had formed over the middle line of the larynx, and on the previous evening the child had coughed up some bloody pus. The abscess was opened, and a considerable quantity of putrid pus escaped. The child died a few days afterwards, apparently of exhaustion. An inspection was not permitted.

In the absence of a post-mortem examination it is, of course, impossible to say with precision how the abscess had arisen. Its situation, the expectoration of bloody pus by the patient, and the septic condition of its contents, indicated that it communicated with the larynx. A diphtheritic ulcerative process of the laryngeal mucous membrane had probably extended to and implicated the cartilage, and thus led to perichondritis and suppuration in the overlying soft tissues.

Case XV.—Boy, aged 6½ years, under the care of Dr Henry Hay. *24th July* 1891.—This child was extremely ill with "diphtheritic croup," the dyspnœa, in fact, being so intense as to make death appear a matter of but a few minutes. Intubation was rapidly performed, with immediate and complete relief to the respiration. It is no exaggeration to say that the child breathed immediately after the operation as freely as if nothing were amiss with his throat. *25th July* (twenty-four hours after intubation).—The child continues well, breathes freely, and swallows without difficulty. (Thirty-two hours after operation)—The dyspnœa has recommenced, the child is not so well, and is restless. (Thirty-six hours after operation)—The dyspnœa having increased, the tube was removed for purposes of examination, but it was found that the increasing difficulty in breathing was not due to its blockage. Improvement followed the removal of the tube, but only for a few minutes. The tube was accordingly reinserted, but no improvement in the respiration followed, and the child died of asphyxia shortly afterwards.

A second obstruction to the respiration, most probably due to fresh formation and extension of membrane to the trachea and bronchi, was the main and direct cause of death in this instance. It is highly problematical whether, under these circumstances, the performance of tracheotomy would have been of service; and as from the first the parents objected to this operation, it was not recommended in the latter stage of the case.

In commenting on the preceding cases, and in criticising in a general way the operation of intubation of the larynx, it is necessary to bear in mind that it is the application or performance of the operation in diphtheria with which we are now dealing. In non-diphtheritic affections in children, such as acute inflammation from scalds, etc., it is, as I have had occasion to note, a most excellent operation, yielding highly satisfactory results. Further consideration of these cases does not fall within the scope of the present paper.

Nor am I concerned to discuss the question of the identity or non-identity of croup and diphtheria, except to say that I am of those who believe what is sometimes called membranous croup to be diphtheria. No distinction, clinical or pathological, can be drawn between these two diseases (if two there be), and their morbility is, unfortunately, also equally great. Both are, in the words of Morell Mackenzie,[1] diseases "characterised by more or less inflammation of the mucous membrane of the pharynx, larynx, or air-passages, and by the formation on the surface of these parts, especially on the mucous membrane of the fauces or windpipe, of a layer or layers of lymph, or false membrane, generally showing signs of bacteroid mycosis." It ought to be borne in mind, however, that the absence of false membrane does not preclude the existence of diphtheria. Morell Mackenzie[2] describes two classes of cases in which it may be absent—viz., "Those in which death from blood-poisoning occurs before the exudation has time to form, and those in which the local process is not severe enough to result in the formation of a definite membrane." This class has been described by Dr Michel Peter[3] as *diphtherite sine diphtheria*. I believe diphtheria without membrane to be a not uncommon disease.

The operation of intubation of the larynx may be considered in reference to—(1), Its Performance, embracing the Insertion, the Retention, and the Withdrawal of the Tube; (2), Its Technique and Instrumentation; (3), Its Adjuvants; and (4), Its Comparison with Tracheotomy.

### 1. The Performance of the Operation.

The details of O'Dwyer's method of operation have already been given in the early part of this paper, and now it is proposed to direct attention to some points of difficulty which are apt to be encountered, and some contingencies which may arise, in its performance.

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[1] *Diseases of the Throat and Nose*, vol. i. p. 120.
[2] *Op. cit.*, p. 141.
[3] *Thèse de Paris*, No. 270, Paris, 1859 (quoted by M. Mackenzie).

*The Insertion of the Tube.*—Placing the tube in the gullet instead of in the larynx is a common occurrence, especially in the case of those who have not had much experience of the operation. If the operator will bear in mind to make the tube take a turn *forwards* after it has reached the epiglottis, it will, as a rule, slip easily into the larynx. If there is much membrane about the aditus laryngis, its passage into the larynx may be impeded (as in Case V.) Similarly, swelling of the supra-glottic portion of the larynx may altogether hinder the insertion of the tube, as in a case recorded by Menigan,[1] in which, on account of the swollen ary-epiglottic folds, the tube could not be placed so as to be retained, and laryngotomy was accordingly necessary. Repeated attempts to insert may exhaust, and even kill, the child. O'Dwyer[2] affirms that apnœa may result from prolonged efforts at introduction. One of the most untoward results of insertion is detaching and pushing membrane into the trachea, and so causing more or less complete obstruction. I am not conscious of having witnessed this accident, but Barlow[3] mentions having met with it once, with a fatal result. O'Dwyer[4] acknowledges that it may occur, and says it is more likely to happen in secondary dyspnœa when the tube is introduced for the second time. In one case where this happened the tube was immediately withdrawn, when a membranous cast of the trachea was coughed up. In all such cases it is necessary to remove the tube and afford the patient an opportunity of expelling the detached membrane. Failing this, tracheotomy or a rapid laryngotomy may be indicated.

*The Retention of the Tube.*—In two of the cases reported in this paper death was due to asphyxia from blockage of the tube—in the one case by blood, and in the other by inspissated mucus. Such occurrences do not appear to be common. Deming[5] has recorded a similar case, and O'Dwyer,[6] out of sixty-five cases, found that in two the tube was stopped with membranous masses, but apparently without fatal results. Wheeler[7] mentions the case of a child who, twelve hours after intubation, had a severe fit of coughing and died suddenly. The tube was found completely obstructed with a large piece of false membrane, which had apparently been driven into it by the act of coughing. Mount Bleyer[8] found that, in two out of 322 cases of intubation which terminated fatally, the cause of death was asphyxia due to closure of the tube by membrane. It is curious to note the divergence of opinion which exists regarding this very important point—the liability of the tube to blockage. Ramon de la Sota[1] speaks of it as being a common accident; whilst Fletcher Ingals[2] says that the incidents of the clogging of the tube and choking are so rare as not to trouble him. The writer seems to have been somewhat unfortunate in having met with it twice in fifteen cases.

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[1] *New York Medical Record*, 6th October 1888.

[2] *Ibid.*, 10th October 1887.

[3] *Lancet*, 20th September 1890.

[4] *New York Medical Record*, 22nd October 1887.

[5] *Ibid.*, 18th February 1888.

[6] *Ibid.*, 28th May 1887.

[7] *Ibid.*, 26th February 1887.

[8] *Transactions of the Tenth International Medical Congress*, 1890 (reprint).

To obviate the risk of blockage, it is advisable to remove the tube every twenty-four hours, inspect, and, if necessary, clean it. Pinkham[3] recommends to clear the tube in position by means of an aspirator—a most impracticable suggestion. It is stated by some authorities (Fletcher Ingals[4]) that when the tube becomes clogged it is almost certain to be coughed up, but this has not been my experience. This occurrence ought not to be depended upon as at all likely to happen.

Coughing up of the tube is a much more common, and fortunately a much less serious event than blockage. It repeatedly occurred in several of my cases, without having any bad result. The tube is either forced into the oro-pharynx or mouth, whence it can easily be removed by the finger. It may be swallowed (Case V.) Tipton[5] mentions a case in which the tube was swallowed and passed per anum, and Ramon de la Sota[6] had a child who passed the tube per anum after several days. In such cases it will usually be found that too small a tube has been used.

I have not witnessed any injurious local effects from the continued presence of the tube in the larynx, but other observers claim to have done so. Shingleton Smith and Waldo,[7] in a case of intubation, ascribe an attack of acute inflammation of the larynx and trachea to the presence of the tube. Northrup[8] found in five out of twenty intubations deep ulcers laying bare the tracheal rings. The head of the tube did not cause ulceration, but at most only a necrosis of the epithelium. It seems to be the anterior wall of the trachea which is most apt to suffer (Boldt and Northrup[9]). It is pointed out by O'Dwyer[10] that the subglottic portion of the larynx is the narrowest portion of the upper air-passages, and here, in croup, necrosis of the mucous membrane may take place in twenty-four hours. In eighteen out of seventy-two fatal cases Bokai[11] found that the tube had caused ulceration, but in sixteen it was slight. In one case there was a perichondritic tracheal abscess, in the other also the cartilage was involved. Widerhofer[1] has seen cases of decubitus (pressure ulceration) from intubation; and Mount Bleyer[2] found, out of 512 cases, that ulceration from pressure occurred in 1 per cent. It is difficult to gauge the value of these statistics, as, in the absence of necropsies, it is virtually impossible, in the great majority of cases, to say whether ulceration has or has not been produced by the tube. It does not appear to produce serious results, unless such cases as those reported by Chavasse[3] (that of a five year old boy, in whom, after diphtheria and intubation, a complete stenosis of the larynx existed) and by Widerhofer[4] (who says he has seen instances of cicatricial stenosis necessitating tracheotomy follow intubation) be due to the formation and subsequent healing of pressure ulcers. The possibility, however remote, of these local lesions is an additional reason why the tube should be removed at the earliest possible moment, and is a partial justification for the practice of what Huber[5] calls "intermittent intubation," in which a smaller canula which can be easily coughed out is employed, and is not reinserted until the respiratory obstruction becomes marked. Continuous pressure of the tube on one particular spot would thus be averted.

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[1] *Siglo Medico*, 12th October 1890.

[2] *Transactions of the Ninth Annual Congress of the American Laryngological Association*, May 1887.

[3] *New York Medical Record*, 17th March 1888.

[4] *Op. cit.*

[5] *New York Medical Record*, 22nd October 1887.

[6] *Rev. Méd. de Sevilla*, tom. xii. No. 12.

[7] *Lancet*, 18th June 1887.

[8] *Philadelphia Medical News*, 11th June 1887.

[9] *New York Medical Record*, 12th November 1887.

[10] *Ibid.*, 5th October 1889.

[11] *Jahr. f. Kinderheilkunde*, Bd. xxxiii. H. 3 (Epitome of *British Medical Journal*, 12th March 1892).

*The Withdrawal of the Tube.*—The period of permanent withdrawal of the tube varies considerably in different cases. Curtis[6] records the case of a ten year old child with diphtheria, in whom the tube along with some pieces of membrane were expelled by coughing twenty minutes after insertion. Secondary intubation was not necessary, and the child recovered. Brothers[7] describes what is probably the case in which the tube was borne for the longest time on record, viz., fifty-eight days, with interruptions to the end of the twenty-first day. As a general rule, an attempt ought to be made every twenty-four hours to do without the tube: if dyspnœa return, it ought to be reinserted. Spasm of the glottis occasionally follows on its removal (Cheatham[8]); this is successfully treated by the inhalation of chloroform for fifteen or twenty minutes. Partial or complete aphonia, but only lasting for a day or two, and spontaneously disappearing, is occasionally a sequel (Mount Bleyer[9]).

(*To be continued.*)

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[1] *Naturforscher Versammlung in Bremen*, 1890.

[2] *Transactions of the International Medical Congress*, 1890 (reprint).

[3] *British Medical Journal*, 23rd November 1889.

[4] *Op. cit.*

[5] *Arch. of Pediatrics*, January 1889.

[6] *Lancet*, 31st March 1888.

[7] *New York Medical Record*, 27th July 1889.

[8] *Cincinnati Lancet Clinic*, 10th February 1888.

[9] *Transactions of the Tenth International Medical Congress*, 1890 (reprint).

# VII.—AN EXAMINATION OF THE PHENOMENA IN CHEYNE-STOKES RESPIRATION.

By G. A. Gibson, M.D., Assistant Physician to the Royal Infirmary, and Lecturer on the Principles and Practice of Medicine at Minto House, Edinburgh.

(*Continued from p.* 643.)

We have to consider, thirdly, the theories which seek to explain the regular periodicity of the respiration by variations in the intrinsic condition of the respiratory centre.

Observing, as we have previously seen, that in certain circumstances the contractions of the frog's heart fell into groups, or became periodic, Luciani was led by the resemblance of this phenomenon to the character of Cheyne-Stokes breathing to seek for some condition common to both as the cause of the two phenomena. The experiments and observations which he has made have already been fully referred to.

He does not think that Cheyne-Stokes breathing can be explained by means of the principle, that the capacity and activity of a nervous organ depend on extrinsic stimulant and nutritive conditions. No doubt the vitality of any organ is intimately connected with surrounding conditions and influences, but it does not follow that the organ in every case transforms only as much as it receives in the same measure as well as in the same rhythm with which it receives it. Drawing a clear line of distinction between reflex and automatic movements, Luciani points out that the determining cause of the former is extrinsic, while in the case of the latter it is intrinsic, and consists in oscillations of the internal nutritive movements, to which correspond as many oscillations of the excitability of the organ itself. He was led to this conception of automatism by the discovery of the periodic grouping of the movements of the frog's heart, for it could not be doubted that when extrinsic conditions remained unchanged, the cause of the alternate groups of pulsations and pauses was intrinsic. Luciani therefore regards the diverse forms of respiratory rhythm as extrinsic expressions of the nutritive changes in the structure of the respiratory centre. If it be granted that the respiratory centre is automatic, it follows that the different forms of rhythm which constitute Cheyne-Stokes phenomenon may be regarded as effects of diverse kinds of automatic oscillations in the excitability of the centre itself.

This theory presents us with views entirely different from any which we have hitherto criticised. It is quite true that Traube, in his later hypothesis, makes mention of a tendency to rhythmic periodicity in the respiratory centre, and that Hein somewhat briefly refers to a periodic variation in the activity of that centre; these authors, however, clearly indicate that such changes are conditioned by extrinsic agencies. Luciani therefore makes quite a new departure in advancing the view, that the change from regular to periodic rhythm is due to intrinsic conditions.

The chief difficulty, as regards this theory, appears to be placed in the question whether the respiratory centre can be regarded as really automatic. As will be shown in the sequel, there can now be no manner of doubt that the respiratory centre is truly automatic in its action. And this being granted, it must of necessity follow that, although it is perhaps more influenced by external agencies than any similar organ, the nerve centre mainly concerned in the maintenance of respiration can modify its functions independently of such extrinsic conditions. There can, therefore, be no great obstacle in the way of accepting Luciani's conclusions.

Rosenbach finds an explanation of Cheyne-Stokes breathing, with its attendant symptoms, in the alternation of activity and repose characteristic of Nature. In the respiration we see inspiration, expiration, and pause; in the circulation, systole, diastole, and pause; in the nervous system, waking and sleep; while in curarized animals there are periodic changes in the rate and tension of the circulation which are quite independent of the respiration. The origin of activity is in the *cell,* not the *blood,* and it is illogical to seek a cause of respiratory and other phenomena in the latter. Periodic activity of all nervous apparatus, therefore, depends on immanent peculiarities of elementary structures, and the blood is not the direct stimulus for the cells, but has its power in giving the cells the possibility of regulating tissue change. When the blood is altered there is necessarily a modification in the absorption of oxygen and the removal of the products of tissue change, and the mechanism will therefore be indirectly affected; the blood is thus only one link in the chain of apparatus needful for life.

The regular alternation of activity and repose characteristic of life is seen in the complex of pathological phenomena, of which periodic breathing is only one symptom, and Cheyne-Stokes respiration is therefore the result of a condition in which the exhaustibility of the central apparatus, normally following its activity, is greatly increased. The respiratory centre has its irritability lowered, as the breathing is at first shallow, but the irritability progressively increases, for in spite of better aëration, dyspnœa gradually develops. The irritability then diminishes, and the descending phase begins.

The phenomena, therefore, according to Rosenbach, occur in conditions of disturbed nutrition, but they are independent of any periodicity in the blood-supply to the brain, and are co-ordinated by, and joint effects of one and the same cause occurring periodically in the central organs, this cause being exhaustion of the centres. The whole brain may be affected, when the entire complex of symptoms termed Cheyne-Stokes phenomenon is produced, or limited tracts only may be implicated, giving Cheyne-Stokes breathing. He points out that just as the respiratory centre alone may be deranged, so the vaso-motor or vagus centre may be disturbed, as in tubercular meningitis, and cause changes in the tension or rate of the pulse. Rosenbach compares the periodic exhaustion with the normal pauses for rest shown by all rhythmically acting systems. The different phases resemble natural phenomena, but with longer intervals; the period of breathing, for example, is to be compared with a respiration, and the period of repose with the short pause following expiration. The vagus and vaso-motor centres show similar variations. The exhaustion of the brain induces sleep, during which the pupils behave as in ordinary slumber.

The centres are not only more easily exhausted, requiring longer rest, but their irritability is reduced, and forced breathing comes on in spite of better arterialization of the blood (which involves reduction of stimulus). The meaning of this is, that the centre is becoming more irritable, although the stimulus is lessening. After a time the normal irritability is regained, which is accompanied by gentler breathing until the pause resulting from exhaustion occurs.

This theory runs on the lines laid down by Luciani, and assumes variations in the intrinsic condition of the centres as the cause of the periodicity of the phenomena. This, as has been stated, is an opinion which is difficult to refute. But the chief import of Rosenbach's work is the masterly grouping of the different phenomena, whether inherent or accidental, as one complex of symptoms, conditioned by one and the same cause. The great value of his contributions lies in the fact that he has marshalled all these appearances, and given a satisfactory explanation of their origin.

Mosso, from the consideration of a long series of interesting observations and experiments, concludes that the respiratory movements are modified according to the amount of activity present in the nervous system, and points to the intimate relations existing between periodic breathing and sleep. It has been thought that the greater or less activity of the respiratory centre represents a greater or less need of provision by pulmonary ventilation for the chemical wants of the organism; but the author is of opinion that he is not far from the truth in thinking that the respiratory movements modify themselves according to the states of sleeping or waking—of greater or less activity of the nervous system. He holds that the mechanical and chemical parts of respiration are distinct, that the mechanical is more representative of the vitality of the nerve centres than of the chemical wants of the organism; that if the nervous excitability increases more air is inspired than is needed for chemical wants; while, on the contrary, during sleep the mechanical may lessen or become periodic without disturbance of the chemical function of tissue respiration; and further, that when the excitability of the centres is much lowered, it can be determined that the accumulation of carbonic acid by asphyxia causes almost no effect on the respiratory movements.

These views are in the main in accord with the opinions of Luciani and Rosenbach, but they embrace one or two extensions in different directions. In regard to the relations existing between periodic breathing and sleep, it has been urged that sleep is impossible when ordinary stimuli are maintained; it must nevertheless be borne in mind that, when the nervous centres are exhausted, sleep occurs even during the presence of ordinary stimuli.

Greater exception may probably with justice be taken to the hypothesis that the mechanical and chemical functions concerned in respiration may undergo quantitative changes irrespective of each other. There can, however, be no doubt, as will be fully proved in the sequel, that the centres engaged in the processes of respiration are endowed with a large measure of automatism, and it may fairly be concluded that there is no absolute quantitative relation between the mechanical and chemical functions.

With regard to the main theory, that the respiratory movements in periodic breathing are modified according to the amount of activity present in the nervous system, it is only necessary to remark that, like the two just discussed, it rests upon a sure basis.

Murri has more especially attacked Mosso for holding the view that Cheyne-Stokes breathing presents a condition analogous to sleep, and he urges that if this were really the case, periodic breathing would be a common appearance instead of a rare symptom. But Murri is entirely incorrect in considering periodic respiration as a rare phenomenon. In very many different but physiological conditions various degrees of this type of respiratory rhythm may be seen, as will be shown in the sequel.

The interesting observations of Langendorff and Siebert have led them to the somewhat indefinite conclusion, that periodic breathing is caused by disturbance of irritability produced by changes of nutrition. Their views, notwithstanding a considerable degree of vagueness, appear to accord for the most part with the conclusions of most of the observers who are embraced in this section, and they merit a similar place in regard to their scientific value.

From the results of their observations, which have already been fully referred to, Solokow and Luchsinger have come to the conclusion, that the phenomena are absolutely independent of changes in blood-pressure, and that the conditions underlying the periodicity of the respiration are such as are developed in every tissue with increasing asphyxia; that the cause is, therefore, to be found in the lessened elasticity and greater exhaustibility of the centre.

These views are founded on a series of observations so complete as to leave no room for any doubt in regard to the validity of conclusions reasonably deduced from them, and the opinions of these observers naturally fall in with and complete the teaching of Luciani and Rosenbach.

The experiments and conclusions of Fano may briefly be classified as strictly analogous to those of the two authors just referred to.

Löwit, from his clinical studies, and Saloz, from his experimental investigations and clinical observations, have apparently arrived at conclusions which closely resemble those already discussed as belonging to the third group.

Murri thinks that in periodic breathing there is a regular increase and decrease of the activity of the respiratory centre, caused by some mechanism at present unknown. He holds, however, that the irritability of the respiratory centre is depressed; and he is of opinion that the respiratory centre must have several zones, corresponding to different groups of muscles, and endowed with various degrees of irritability.

So far his views are in accord with those placed in this group. But he proceeds to argue that in health the most sensitive zone responds promptly to stimuli, and is therefore sufficient for the function of respiration. If impaired, however, it needs stronger stimuli, and these rouse the other zones, causing dyspnœa, by means of which more oxygen is supplied to the blood, and there is a larger supply to the medulla; this gives rise to a slowing of respiration which ends in the pause, with accumulation of carbonic acid and a repetition of the cycle. The decreasing or descending respirations are due to the continuance of activity after the interruption of the stimuli; the dyspnœa is caused by the delay in the aëration of the medulla. It must be admitted that the irritability of the respiratory centre is impaired in order to have the necessary conditions for the development of Cheyne-Stokes respiration.

In this there is a complete adoption of the theory of Traube, and Murri's explanation, therefore, embraces, firstly, fluctuations of activity in the centre, caused by some mechanism as yet unknown, but probably intrinsic; and, secondly, alterations occurring reflexly in response to extrinsic stimuli. The first part of his hypothesis is probably founded on correct views; the second, as has been seen, is in itself at once inadequate and unnecessary. It is, however, not improbable that as an additional and accidental part of the phenomenon, such processes are sometimes linked with the more important automatic action of the centre.

(*To be continued.*)

# Part Second.

## REVIEWS.

*Diseases of the Throat, Nose, and Ear: A Clinical Manual for Students and Practitioners.* By P. M'BRIDE, M.D., F.R.C.P.Ed., Surgeon to the Ear and Throat Department of the Royal Infirmary; Lecturer on Diseases of the Throat and Ear in the Edinburgh School of Medicine. Edinburgh and London: Young J. Pentland: 1892.

THE third volume of Pentland's Medical Series appears under the above title, and bids fair, we think, to have a success equal to or greater than that obtained by the previous volumes on the Skin and the Eye.

The author is well known to our readers as a shrewd observer, an original thinker, and a man who has established a reputation, both in this country and abroad, as an able writer and a successful practitioner; and it is not too much to say that anything coming from his pen is sure to be worth reading. But this volume is of special interest, for it is, so far as we know, the only manual that has appeared by one writer dealing with all the three subjects—the throat, the nose, and the ear. That Dr M'Bride has attempted to combine these subjects in one volume, and has done so with such complete success, is a departure from the usual custom of considerable importance, and one which will be welcomed by the student; and more than that, it is the best possible argument against those who advocate the necessity for the separation of the ear and throat in practice and in teaching. So long as the literature of these subjects is not beyond the grasp of one man—and the present volume shows that it is not—we feel convinced that more minute "specialism" is not necessary in subjects so closely and intimately connected in diagnosis and treatment as these are, and, indeed, would be not unlikely to bring the specialty into discredit with the public. The intimate knowledge exhibited by Dr M'Bride of the literature of his subject, and the clear way in which the views of others are expressed, is one of the features of the book, and makes it not only a valuable text-book for the student, but a book of reference to the practitioner. To this end most elaborate and complete indices of authors and subjects, occupying no less than thirty pages, have been provided.

The first part is divided into the Diseases of the Pharynx and Larynx, which commence in each case with chapters upon the Methods of Examination and General Therapeutics, the subsequent chapters describing the various diseases affecting these regions. Of special interest will be found the chapter on Neuroses of the Larynx, which is one of the best in the book. The subject of Motor Paralysis is introduced by an interesting *résumé* of our knowledge as to the innervation of the larynx, based upon the experiments of Grabower, Exner, Semon, and Victor Horsley. The author discusses a condition described by Morell Mackenzie as due to paresis of the crico-thyroid muscle, with which opinion he disagrees; and this leads up to a classification of larnygeal paralyses, which differs somewhat from that usually given in text-books.

Immediately following sarcoma of the larynx, in the chapter on Neoplasms, we find described the condition known as hypertrophy of the lingual tonsil. Neither on clinical nor on pathological grounds can we see any justification for its position here.

In the second part we find considered Diseases of the Nose, Nasopharynx, and accessory cavities of the Nose. In the chapter on General Semeiology, what is said on remote effects of nasal disease, with special reference to nasal reflex neuroses, will prove of interest to the general physician as well as to the specialist. The author is not an advocate for heroic treatment in nasal deformities, and his advice on operative interference seems to us to be safe and judicious.

The Diseases of the Ear occupy the last and largest division of the work, and the same plan of procedure is adopted as in the previous sections. To the specialist that portion will prove of most interest which deals with the operative treatment of chronic non-suppurative inflammation. This comprises incision of the posterior fold, section of the tensor tympani, section of the anterior ligament of the malleus, and removal of parts of the membrane and ossicles, as advocated abroad.

Under a separate heading the author gives prominence to an important subject—the connexion between diseases of the throat and nose and middle ear. This is not discussed in most text-books with sufficient clearness; and we are glad to notice the prominence here given to a subject which has such important bearings upon successful treatment.

The coloured plates are in most cases excellent, and they are conveniently placed throughout the text; but we much regret that the author has not seen his way to provide more of them, to aid the student to recognise diseased conditions.

The whole book is written in clear and vigorous style, and the writer conveys his meaning in forcible, lucid, and intelligible language. Medical teachers often find themselves placed in a difficulty when asked to recommend a text-book to their students, but we have here a safe and thoroughly practical guide which we can unhesitatingly recommend to them. The book is throughout a model of what a text-book should be. It is well printed, and singularly free from those minor errors which often mar the appearance of a book, and are an evidence of hasty composition. We congratulate the author and the publisher respectively on the contents and the appearance of the volume.

### *The Rational Cure of Deafness and Discharge from the Ear.* By Drs SEXTON and DUANE. New York: J. H. Vail & Co.: 1891.

IN this *brochure* we have advocated an operation called "the modern treatment for the radical cure of deafness, otorrhœa, noises in the head, vertigo, and distress in the ear," with a considerable number of cases giving satisfactory results recorded. The operation advised is "the excision of the necrotic remnants of the membrana tympani and the two large ossicles" in cases of chronic otorrhœa, and of the entire drumhead and "the two large ossicles" in other cases. Dr Sexton has taken this method of giving information concerning his modern treatment of ear diseases by radical measures to numerous inquirers, and of course others, but he has also previously presented the results of his own experience in this direction by a paper read before the American Otological Society in 1886, one before the British Medical Association in 1889, and one at the Tenth International Medical Congress in Berlin in 1890, besides an article published in the *Archives of Otology,* April 1891. The "radical measures" adopted by others as well as Sexton—some are simpler and modifications of Sexton's complete operation—have proved in many cases, for the limited period of time, so far beneficial. Kessel, Lucæ, Kretschmann, Schwartze, and Urbantschitsch of Europe, and Burnett and our author of America, have devised and perfected operations which in their own hands and in the hands of others have yielded most gratifying results. The number of operations known to have been already performed is in the hundreds, and the statistics published show a preponderance of successes. The cases suitable, the method of illuminating and of proceeding with the different stages of the operation, what may happen, complications, the results, and the general treatment, are clearly and distinctly given by Sexton. The study of this book and of his other publications, and the writings of the authors abovementioned, are cordially recommended to aural surgeons and to the profession generally.

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### *Diagrams of the Mouth, Fauces, and Larynx, for Clinical Purposes.* Published by J. T. Balcomb, London.

THE use of these outline drawings will effect a great saving of time to the specialist, and should prove of service to all who require to keep for reference accurate records of diseased conditions in the mouth or throat. The diagrams are neatly printed in red ink, and each sheet contains three drawings, which can be easily separated, as the paper is perforated. The back of the drawing is gummed, so that it can be attached to the hospital chart or private casebook. An outline of the anterior nares would be a useful addition to those already supplied.

*Epitome of Mental Diseases, with the Present Methods of Certification of the Insane, etc.* By JAMES SHAW, M.D. Bristol: John Wright: 1892.

THE author states that his work is intended to be a handy and practical book of reference for general practitioners, and an introduction to the more comprehensive treatises and exhaustive monographs. He adds, that though the work is necessarily to a great extent a compilation, it is not altogether so. The accumulation of knowledge about insanity is, however, so great that it is impossible to write a book embracing the whole subject without taking advantage of the statements of others, and in this book Dr Shaw not only shows a good acquaintance with the literature of insanity, but has evidently a direct experience of which he makes good use. In the first chapter he gives an account of the different classifications of insanity in ordinary currency, amongst which are two by Dr Krafft-Ebing. Dr Shaw himself prefers the last of these classifications to all the others. The second chapter contains an index of symptoms, with the mental diseases in which they occur. The next chapter gives an index of mental diseases, with their symptoms and synonyms. These are arranged in the alphabetical order, and can also be found in the general index at the end. Then follow chapters on etiology, diagnosis, prognosis, pathological anatomy, therapeutics, legal regulations, and forensic psychiatry. We cannot guess why Dr Shaw has lighted upon such an arrangement, and feel doubtful as to whether it will be found useful by general practitioners. He certainly gives in the space of 345 pages a good deal of information, and a great variety of views and statements about insanity on the authority of well-known writers. Owing to the shortness of the work there is an absence of criticism, but good judgment is shown in the selection of what is recorded.

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*A History of Medical Education from the most Remote to the most Recent Times.* By Dr THEODORE PUSCHMANN, Public Professor in Ordinary at the University of Vienna. Translated and Edited by EVAN H. HARE, M.A. (Oxford), F.R.C.S. (London). London: H. K. Lewis: 1891.

THE subject truly is a wide one, and it would seem an impossible task to compress such a history into 650 well-printed pages. The attempt has been made successfully by Dr Puschmann, who has shown an admirable power of concentrating information by giving the gist of a matter without superfluous verbiage, and yet without undue dryness or baldness of style. Accurate statement of the little we know of ancient medicine, with full notes containing references to authorities, form a stable foundation on which his history is builded, and any subsequent inquirer who may wish to write a monograph on a given age or a given school will find his work rendered easy for him by the copious bibliography contained in the notes.

The extreme condensation which the scanty material makes possible in writing the history of ancient medicine becomes more difficult and more liable to hostile criticism as our author approaches the present day, as the wealth of material might lead the reader to expect more detail.

The account of the various schools, universities, and degree-granting bodies in the civilized world of the present day is necessarily exceedingly condensed, but seems, so far as it goes, to be correct enough. Edinburgh is very briefly described, but, so far as it goes, is only a very few years behind accuracy.

The one great lesson to be learned in this great encyclopædic work is that there is a great deal of human nature in all ages and in varying climates, and it is marvellous in how many points the ways of the doctors of the nineteenth century are in sympathy with and resemble those of many thousand years ago. An Indian doctor in the oldest medical work in Sanscrit is admonished he is to treat without reward Brahmans and teachers. This shows the antiquity of the practice that the parsons are generally poor payers. Even the Sanscrit doctor, "in order to conceal his want of skill, attributes his want of success to the absence of the necessary means and nursing, and to the patient's neglect of his injunctions." In the Hippocratic writing we find that the physician to be successful should be "fairly plump" in body. This is quite characteristically true still; also "that he should use ointments spreading an agreeable, but not a suspicious aroma." Iodoform is here obviously not darkly hinted at. Profound wisdom is in the answer of Herophilos as to the best doctor—"He who knows how to distinguish the possible from the impossible." The anatomists, though often persecuted, had sometimes fine chances. The Egyptian kings gave them any quantity of human subjects for dissection, and they even had the opportunity of opening living men! Pliny took rather an uncharitable view of a doctor's privilege. "It is permitted him by our danger to learn for the future, at our death to make experiments, and without having to fear punishment, to set at nought the life of a human being." Even in the time of Galen we find that drugs were adulterated, and in Martial's day the risk of too large clinical classes was well known. He writes to Symmachus (Lib. V. ix.),—

> "Languebam ; sed tu comitatus protinus ad me
> Venisti centum, Symmache, discipulis.
> Centum me tetigere manus Aquilone gelatæ
> Non habui febrem, Symmache, nunc habeo."

"I was ill. Thou camest forthwith to me accompanied by 100 pupils; 100 ice-cold hands were laid upon my body. Till then I had no fever; now I have."

Specialism was as rampant in the days of Martial as in our days. Not only had they surgeons, accoucheurs, gynæcologists, ophthalmologists, dentists, and aurists, but also specialists for nearly every other part of the body, for fistulas, ruptures, lithotomy, hernia, and cataract, and even the water cure, the milk cure, and the wine cure were then fashionable each in their turn. Seneca gave the profession a good word, which our best patients sometimes echo. "People pay the doctor for his trouble; for his kindness they still remain in his debt."

It was left for an Arabian physician to describe a characteristic of the professorial class not unknown in our days in those benighted regions, where "ancient manuscripts" are brought in daily for at least 100 lectures. "The reputation of the learned man lies in his lecture-book like that of the merchant in his money-box." Wise, prescient Samachschari!

We—that is, the uneducated—are hardly prepared to hear of the magnificent hospitals provided by the Arab sultans. At Cairo, El Mansar Gilavun altered, at great expense, a noble castle into a hospital, with wards for various diseases, eye wards, fever wards, lunatic wards, baths, lecture-rooms, a convalescent department, a chapel, a library, and a "Samaritan Society," which looked after the convalescents on their departure, and gave them money for their journey home and that they might not work too soon. Verily, we may say with the Preacher, there is nothing new under the sun.

One last and greatest achievement of this profound work—the author has quoted Mr Gladstone as a prophet. The translator wishing to verify this quotation, has obtained an answer, presumably on a post-card, from Mr Gladstone. This answer is quoted *in extenso* in a footnote, and is a magnificent example of the power of words to conceal meaning. Dr Puschmann's work deserves a place in any medical library pretending to completeness.

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*The Harveian Oration on Harvey in Ancient and Modern Medicine.* By W. HOWSHIP DICKINSON, M.D., F.R.C.P., Honorary Fellow of Caius College, Cambridge; Senior Physician to St George's Hospital; Consulting Physician to the Hospital for Sick Children, etc., etc. London and New York: Longmans, Green, & Co.: 1891.

THIS little volume is very nicely got up and beautifully printed. The first part of it is taken up with the usual eulogy of Harvey. Dr Dickinson, in the course of it, imagines the discoverer of the circulation sitting among the immortals and looking down on the wonderful results arising from his observations. We are perfectly certain that if the old gentleman were engaged in such an occupation, he would be heartily sick of the annual laudation so regularly meted out to his shade. Dr Dickinson, however, becomes more interesting when he applies his thorough knowledge of the circulation to the elucidation of the subject of *renal* dropsy. Lately there has been a tendency to ascribe all the processes of the body to chemical action; our author desires to prove that this process, at any rate, is as much dynamical as chemical, and "that it is associated with arterial pressure as the others (cardiac dropsies) with venous, as immediately, though not *ab initio*." His premises are—the similarity in the constitution of the fluid in renal and cardiac effusions; an impediment to the circulation situated in the capillaries, due either to change of blood *per se*, or to contraction of these vessels engendered by it; and the increase in the size of the heart and consequent diminution of the dropsy, with subsequent increase following on dilatation of the cardiac organ.

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*Massage and the Swedish Movements.* By KURRE W. OSTROM. Illustrated. Second Edition. London: H. K. Lewis: 1892.

THIS is a capital book, clear, concise, well illustrated, and the bibliography, for the convenience of those who desire to especially study certain branches of Mechano-therapeutics, is valuable and up to date.

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*Yellow Fever.* A Monograph. By J. W. MARTIN, M.D.

FOR men going to practise in the tropics Dr Martin's monograph will be very useful. His historical and geographical description of yellow fever is good, and his treatment is, we think, correct. The cases which are given are good, and we congratulate him upon having had an opportunity of investigating a disease which is not known in this country. We cannot agree with him in saying that quarantine is of no use, for we think that in all cases where yellow fever is on board ship quarantine should be rigorously employed.

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*Alpine Winter in its Medical Aspects.* By A. TUCKER WISE, M.D. Fifth Edition. London: J. & A. Churchill: 1892.

THE fact that this book has reached a fifth edition seems to show that it meets a want. It is well written, and gives all the information which is necessary with regard to the Alpine winter stations.

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*Human Monstrosities.* By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania; and GEORGE A. PIERSOL, M.D., Professor of Histology and Embryology in the University of Pennsylvania, Philadelphia. Part I. Philadelphia: Lea Brothers & Co.: 1891.

THIS work, the first part of which is now before us, promises to be one for which a place must be found in the library of every anatomist, pathologist, obstetrician, and teratologist. It is the first work in English in which the subject of teratology is treated in a comparatively full and complete manner. It is the joint production of an obstetrician and an embryologist and histologist, and this fact makes it certain that both the obstetric and the anatomical sides of the subject will be fully represented and described.

The work is in the form of a large atlas, but we must confess that we do not see why it has been allowed to assume so great a bulk and so sumptuous an appearance. Each page measures 17 in. by 13 in., whilst the text occupies a space of only 8 in. by 5 in. Had the margin assumed more moderate dimensions the work would have been of a more convenient size. With the single exception of bulk, the general get up of the book leaves nothing to be desired; the paper is good, the text is clear and distinct, and the illustrations are excellent.

The first part of the work is concerned with the question of the classification of monstrous forms, and, whilst the method of Saint-Hilaire is generally followed, in special sub-divisions the classifications used by Ahlfeld and Förster are adopted. Then follows a well-written and lucid section dealing with the production of malformations. The part which describes the results of the experiments of Dareste, Gerlach, Lombardini, Reaumur, and others, in the field of teratogenesis is of special interest, and it may be hoped that these experiments may before long be repeated or extended by English-speaking investigators.

The third section deals with the description of malformations, and embraces the hemiterata, the curious condition of splanchnic inversion or heterotaxis, the hermaphrodites, and the monstrosities properly so-called. The question of heterotaxis is very briefly dismissed, and might with benefit have been more fully considered, and various specimens might have been described. In this part of the work only a few of the typical monsters have been dealt with,—those, namely, in which the extremities are markedly abnormal, as in the ectromelic, hemimelic, phocomelic, and symelic infants. These varieties are fully described, and their external appearances are well shown in the plates, which are photographic reproductions of specimens in the museum of the University of Pennsylvania, but their value would have been greatly increased had drawings of the appearances of the skeletons been added.

References to the works of the well-known teratologists are frequent and correct, but we miss any notice of the excellent compendium of teratology by the eminent Bolognese writer Taruffi.

The book, so far as we can judge from the portion of it now published, promises to be one of the greatest value to the English-speaking medical world, and we shall look forward with interest to the appearance of the three remaining sections, and to the completion of the work.

*Die Conträre Sexualempfindung.* By Dr ALBERT MOLL. Berlin: Fischer's Medicinische Buchhandlung: H. Kornfeld: 1891.

*Perverted Sexual Instincts.* By Dr ALBERT MOLL.

DR ALBERT MOLL is well known as a writer on hypnotism, and his book on that subject has made its mark, both on the Continent and in this country. He has now produced another volume, which, though dealing with a disagreeable subject, shows well his skill as an author, and represents much labour and considerable learning. The subject of this book is one which is rarely, if ever, touched upon in the medical literature of this country, and for this reason it may be well to call attention to the book, because, when we find how many persons on the Continent suffer from abnormal sexual instincts, it may be that the subject has not received the attention and careful investigation which it requires amongst us. Dr Moll says that he has seen and observed between 300 and 400 persons in Berlin alone who are known to be suffering from this horrible failing. He has heard of 100 or 200 more, and other writers also maintain that the numbers are comparatively large.

Prof. R. von Krafft-Ebing of Vienna writes an introduction to the book. He has already treated of the same subject in his *Psychopathia Sexualis*, published in 1888, and he strongly recommends Dr Moll's work, claiming an unprejudiced examination of the subject. Dr Moll has been fortunate in having had access, not only to the official documents of the Berlin Criminal Police, but also to the resorts of the Berlin unfortunates, under the guidance of the criminal police inspector, Meerscheidt-Hüllessem, and he has been the recipient of the confidences and confessions of many patients.

The book may be called an anthropological study, for the author commences with a review of all that has been known upon the subject from ancient times until the present, and we cannot say that we agree with him in having published this part of the book. It has no practical value, and we cannot help thinking that no good purpose is served by entering into such unnecessary details; and if the book fell into wrong hands incalculable harm might result.

The remainder of the book, however, is a careful description of persons subject to these perverted instincts, of the author's theories with regard to the etiology, diagnosis, and treatment of them, and his views with regard to the forensic aspect of the subject. In this notice it is not our intention to enter into any details, but we may mention that the author believes that both sexes are subject to the complaint, which he holds may be either hereditary or acquired, and he draws a sad picture of the mental suffering which these unfortunate individuals undergo. With regard to the treatment, Dr Moll strongly advocates the attention of medical men to the subject, and thinks that were they more sympathetic, and had they greater knowledge of the matter, much suffering might be avoided. He does not believe that the prognosis is good; still he is by no means inclined to take a pessimistic view of the subject, and thinks that greater knowledge will result in more successful methods of treatment. He strongly believes in prophylactic measures. Dr Moll refers to the various laws which are at present in vogue respecting this subject. He makes various suggestions with regard to their modification, and is strongly of opinion that the greatest care should be taken to distinguish diseased individuals from vicious persons.

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*A History of Epidemics in Britain, from* A.D. 664 *to the Extinction of Plague.* By CHARLES CREIGHTON, M.A., M.D. Cambridge: At the University Press: 1891.

IT is very refreshing to read a book of this nature, not technical in the true sense of the word, but of interest, instruction, and importance to members of the medical profession, as well as to all students of our national history.

Dr Creighton's work has been a labour of years, and provides us with a succinct, well-written, and admirably balanced account of the epidemics in Britain up to the time of the extinction of the Plague in 1666. The immense amount of detail is dealt with by a masterly hand, and we can recommend it most strongly to our readers.

Dr Creighton has chosen the date 664 A.D. as a starting-point, for the reason that it is the year of the first pestilence in Britain recorded on contemporary, or almost contemporary authority—that of Beda's *Ecclesiastical History.* The volume ends with the year 1666, because that marks the extinction of the Plague and the end of a long era of epidemic sickness which differed much in character from the era next following. As Dr Creighton says,—"At or near the Restoration we come, as it were, to the opening of a new seal, or the outpouring of another vial."

The labour involved in preparing this work must have been extreme, and the references to authorities show the extent and difficulty of Dr Creighton's task, whilst at the same time they give an opportunity for those interested in special subjects to verify the author's facts. At the present time the information given with regard to influenza and other strange fevers and fluxes, 1540-1597 (p. 397), the influenzas or fevers of 1657-59 (p. 568), will be read with extreme interest, as will also Chapter II., on Leprosy in Mediæval Britain. Now that the plague or famine fever appears to have broken out in the famine districts of Russia, much valuable information as to its early history and spread may be obtained from this volume.

The exhaustive and well-compiled index will be a great aid to those who, not having leisure to peruse the whole volume, are still interested in one or more of the subjects of which the book treats.

*Saint Thomas's Hospital Reports.* New Series, Vol. XIX. London : J. & A. Churchill : 1891.

Dr Hadden and Mr Anderson have ably performed their task as editors in issuing this volume of reports, which, like its predecessors, contains a number of original papers of considerable interest and value. Those pertaining especially to the department of Medicine include an account of four recent cases of myxœdema by Dr Ord ; an analysis of seven hundred and eight cases of acute pneumonia admitted during the last decade to the wards of St Thomas's Hospital, by Drs Hadden, Mackenzie, and W. W. Ord ; an inquiry into the origin of cranio-tabes in young children, by Dr George Carpenter ; a study of the influenza epidemic of 1890, by Dr P. H. Hawkins ; the report of a case of total transverse lesion in the upper dorsal region of the spinal cord in a man who survived the accident ten months, with a plate illustrating the secondary degenerations in a series of transverse sections of the cord at different levels, by Dr Michell Clarke ; a short paper by Dr Edward Seaton, in which he urges the necessity for clinical instruction at fever hospitals; and an interesting analysis by Dr Bernays of a sample of condensed milk in which fats were found to be almost entirely absent, due to its having been manufactured from skim-milk.

In the department of Surgery we have : the record of certain experimental observations on the brain of the monkey, by Messrs Hadden and Ballance ; remarks on the radical cure of hernia, by Sir William MacCormack ; an analysis of 64 cases of strangulated hernia treated by radical cure in the wards of the hospital, by Dr H. B. Robinson ; the record of seven consecutive cases in which an operation was performed for injury to the cranial vault, by Mr Battle ; an interesting report by Messrs Makins and Abbott on 41 fatal cases of acute infective osteomyelitis terminating with pyæmic symptoms, these being contrasted with 200 cases of ordinary pyæmia; a paper by Dr W. W. Ord, on the treatment of laryngeal obstruction in children by intubation ; one on the same subject by Mr Turney, dealing with the risks of intubation in diphtheria ; an account by Mr Bidwell of the good results which he has obtained in the treatment of erysipelas by the hypodermic injection of carbolic acid ; the report of a case of hydatid cyst between the liver and rectum, by Mr Lunn ; an account of umbilical polypi by Mr W. H. Millar ; the report of three cases of septic poisoning of obscure origin, by Dr Pollard ; and, lastly, an anatomical note upon the relation of the internal carotid artery to the inner wall of the tympanum, by Mr William Anderson.

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*The Chinese : Their Present and Future—Medical, Political, and Social.* By Robert Coltman, Jun., M.D. Philadelphia and London : F. A. Davis. 1891.

This is a bright and lively account of Northern China, written by Dr Coltman, who was surgeon in charge of the Presbyterian

Hospital and Dispensary at Teng Chow Fu, and we are sure that all our readers will appreciate his humorous but at the same time apparently accurate description of the Chinese in their home life, their business opportunities, and the political situation as at present existing. We naturally turn, however, to the medical part of the book, and find two highly interesting chapters, one on Leprosy and the other on the diseases prevalent in China. The principal diseases seem to be dyspepsia caused by bad cooking, or in the lower classes by the coarse food, which mainly consists of millet and the berry of the broom corn. The water-supply, too, is very faulty. Next in frequency to diseases of the alimentary tract are eye troubles, and it is noteworthy that many short-sighted people are met with. Diseases of the kidney are quite common; diseases of the lungs vary very much in location. They are frequent along the coast in the north, and also in the low damp regions in the interior, but in some countries, especially round Weihsien, they are scarcely heard of. Curiously enough, stricture of the œsophagus is far from uncommon, due either to the irritative effects of wine drunk hot, or more especially to syphilis. Nearly all the author's cases improved under specific remedies without dilatation. The native faculty consider this a fatal disease, and call it the "starvation disease." Skin diseases and chronic ulceration of the legs are very frequently met with. Smallpox is very common in China; nearly every one has it at some period of his or her life, usually in childhood. Measles and scarlet fever exist; more rarely genuine enteric fever; and typhus is frequently met with all over Northern China. Malarial fevers are very prevalent; so are worms, diarrhœa, and dysentery. Nervous diseases do not seem to be very common, but "demoniacal possession" is. The Chinese very much object to submit for any lengthened period to the treatment of a foreign physician, or, in fact, of any one physician, their rule being to change physicians twice or thrice daily in serious cases, if they can afford it. With regard to opium smoking or eating, Dr Coltman believes that cases must be treated individually, either by the immediate or the gradual withdrawal of the drug. He speaks favourably of opium refuges, and although allowing that many relapses take place, yet he believes the result to be on the whole very satisfactory, and worthy of continuance as a form of missionary and philanthropic effort. He speaks very highly of the work of missionaries in China, and especially of medical missions. The photo-engravings are very good.

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*The Druggists' Reference Book*, 1892. Philadelphia: P. Blakiston, Son, & Co.

It contains a complete dose table of the official and of many of the important unofficial remedies, also poisons and their antidotes, and will be useful to druggists, for whom it is specially intended.

# Part Third.

## MEETINGS OF SOCIETIES.

## MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

### SESSION LXXI.—MEETING V.

*Wednesday*, *3rd February* 1892.—Mr JOSEPH BELL, *President*, *in the Chair*.

### I. ADMISSION OF ORDINARY MEMBERS.

Dr Alexander Miles, 25 St Bernard's Crescent, and Dr Robert Abernethy, 18 Alva Street, were elected Ordinary Members of the Society.

### II. EXHIBITION OF PATIENTS.

1. *Dr W. Stewart* showed a case in which the ULNAR NERVE was divided by a heavy weight falling on the arm while the palmar aspect of the arm was resting on a sharp edge. The nerve was not exposed at the bottom of the wound, which united by first intention. A fortnight after an exquisitely painful spot developed above the cicatrix, and all the muscles supplied by the ulnar nerve below the wound became paralyzed and atrophied; the sensibility of the skin supplied by the ulnar nerve became almost, but not entirely lost, and ultimately the "claw hand" was well developed. The patient tried his work, but was unable, on account of the loss of power and sensation, to continue at it. After a trial of blistering and electricity, the nerve was exposed—six weeks after the injury. It was found to be flattened, involved in cicatricial tissue, and on the central end a traumatic neuroma had formed, showing that the nerve was completely divided, though the sheath of the nerve was not. This neuroma, involving ⅜ of an inch of the nerve, was removed, and the nerve sutured; the hand was then strongly flexed and fixed in this position. Sensibility returned in about a week or ten days, and the patient was able to resume his work as an engineer on board ship in three months, and now, three years afterwards, has a hand which for his purposes is practically perfect in appearance, motion, and sensation, excepting an increased sensibility to cold in the little finger and ulnar side of the hand.

2. *Dr John Thomson* showed a child with MARKED PULSATION IN THE EPISTERNAL NOTCH, apparently due to the left carotid artery passing obliquely across that region from right to left. The case was of interest in connexion with tracheotomy.

3. *Dr Stockman* showed for *Dr R. W. Philip* a boy 4½ years old, who was brought to the Royal Infirmary a fortnight ago, suffering from FACIAL PARALYSIS. There was no history of injury or exposure to cold, and there was no ear disease. The probable cause of the

paralysis was the pressure of enlarged indurated glands which were present at the angle of the jaw, and could be felt by the finger introduced into the mouth as a firm mass, tender to pressure. Such a cause is mentioned by Henoch, but is stated by him to be uncommon. The child had also large mammæ, the enlargement having been present since his birth, and consisting of adipose tissue.

### III. Original Communication.

*Dr James* read his paper on EMPYEMA AND BRONCHIECTASIS.

*Surgeon-Major Black* said that as diaphragmatic empyema had a tendency to evacuate itself upwards into the lung, he asked if Dr James would recommend any surgical procedure for the evacuation of the pus externally on the chest so as to prevent this tendency.

*Dr James Ritchie* said that his experience of the frequency of bronchiectasis did not accord with that of Dr James. He found bronchiectasis to be a very rare disease. Although some cases presented considerable difficulty in diagnosis, he found that by careful percussion and auscultation even small collections of pus could be located with tolerable exactness, unless they were very deeply seated, and that exploratory puncture, frequently repeated, was not required.

*Dr Norman Walker* asked Dr James how he suspected the condition of localized empyema which could not be diagnosed by physical sign? Did he finally find the empyema at the seat of his earlier tappings? He remarked that the repeated use of the same needle for several exploratory punctures was not to be considered a satisfactory amount of asepticism, and pleaded for the more free use of the dry heat sterilizer before making exploratory punctures.

*Dr James* replied.

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## OBSTETRICAL SOCIETY OF EDINBURGH.

### SESSION LIII.—MEETING IV.

*Wednesday, 10th February* 1892.—Dr Playfair, *Vice-President, in the Chair.*

I. *Dr John Thomson* exhibited the ORGANS from an infant with multiple congenital abnormalities.

II. *Dr G. Owen Mackness* read his NOTES ON A CASE OF PLACENTA PRÆVIA.

*The Vice-President* thought the Society was much indebted to Dr Mackness for bringing this interesting case before them. Placenta prævia, fortunately, did not happen frequently, but when it did occur it demanded all the skill and resource at their command, and it was well they should have the rules of treatment clearly in their minds, so that there should be no delay or hesitation in their application. He would like to point out one risk in the treatment which perhaps was not always sufficiently attended to, namely, the too great hurry there often was to complete delivery.

No doubt the life of the child ought always to be kept in mind, and in these cases a living child should always be aimed at, and was something to be proud of, but the life of the child was not to be weighed for a moment against that of the mother, and he felt sure that rapid delivery meant greater shock to the mother, probably already much exhausted by hæmorrhage. There was, besides, the risk of cervical tearing and more loss of blood from such a source. He had had a painful experience of such an occurrence, and these risks had greatly impressed themselves upon him. After a leg was brought down, little or no further hæmorrhage could take place, and due time should then be taken to avoid shock and cervical tearing in the mother.

*Dr Berry Hart* thought Dr Mackness's case of interest. The management was excellent.

*Dr J. W. Ballantyne* had seen a case of partial placenta prævia, in which an incident somewhat similar to that in Dr Mackness's case had occurred during the puerperium. The confinement took place at the sixth month after a pregnancy which had been characterized by severe hæmorrhages on several occasions; the examination of the placenta showed that it had partially lain in the cervical zone, and some days after the delivery the mother, who was very anæmic, developed phlegmasia alba dolens of the right leg. On another occasion Dr Ballantyne had seen two cases of central placenta prævia on the same day; one was a Maternity case, the other occurred in Prof. Simpson's private practice. In both cases it was necessary to pass the hand directly through the placental substance in order to draw down a leg, and so check the bleeding. In one of these cases there was, in addition, a severe hæmorrhage after the termination of the labour, probably from too rapid dilatation of the cervix. He thought that the treatment adopted by Dr Mackness was the right one in cases of central placenta prævia.

*Dr Mackness* replied.

III. *Dr N. T. Brewis* read his paper on TWO CASES OF VAGINAL HYSTERECTOMY FOR SARCOMA OF THE UTERUS, which will appear in a future number of this Journal.

*The Vice-President* was sure he was expressing the feeling of the Society when he said that they were all greatly obliged to Dr Brewis for the very able account he had given them of the two rare and interesting cases which had come under his care and treatment. The very clear narration of the symptoms would enable the Members to keep them well in recollection, and they would thus be all the more able to recognise a case of the kind when it came under observation. He had no doubt as to the soundness of the line of treatment pursued by Dr Brewis. Extirpation of the whole uterus was the only procedure which gave a fair prospect of success. Though, doubtless, it would have been very pleasing to Dr Brewis, and to all here present, had both cases recovered, yet where such a severe operation was involved, he was to be greatly congratulated on the successful issue of the first case. He (the Vice-President) had had no experience of a case of sarcoma of the uterus; but about three years ago he had under his care a young girl suffering from a large sarcoma of the ovary. She was only 11 years of age, and was operated on by his friend Dr Halliday Croom. The case was one of a series of ovarian cases published by Dr Croom a short time ago. The tumour was successfully removed, and the patient made an excellent recovery, but died some eighteen months afterwards, probably from extension of the disease to the peritoneum and neighbouring organs.

*Dr P. Strassmann* (*Berlin*) quite agreed with Dr Brewis, that the total extirpation of the uterus is the only satisfactory and justifiable operation in every case where a malignant growth exists in the corpus uteri, provided it has not yet attacked the neighbouring organs, especially the broad ligaments. As for the origin of the sarcoma of the uterus, there were besides the primary sarcomatous tumours, certain cases in which a sarcomatous degeneration took place in a fibroid. Perhaps that was the reason in the first case of Dr Brewis, where a small fibroid was found in the wall of the womb. The shock on the second day of that case may have been due to the antiseptic irrigations, because all the symptoms resembled a temporary carbolic poisoning. As for the method of removing the uterus, it seemed to be better to tie the broad ligaments instead of using the clamps, and after removal of the uterus to pull the stumps into the vagina and to close the wound of the operation by suture, though also in Germany opinions varied as to the procedure.

*Dr Berry Hart* congratulated Dr Brewis on his success.

*Dr Brewis* thanked the Society for their kind reception of his paper. The sections proved the first case to have originated in an adenoma. He would stitch the vaginal roof if he were sure that the peritoneal cavity was clean. In both of his successful cases the vaginal roof had been left open.

IV. *Dr John Thomson* read his paper ON A CASE OF CONGENITAL OBLITERATION OF THE SMALL INTESTINE, which appeared at page 840 of this Journal.

*Dr J. W. Ballantyne* had seen a specimen of congenital obliteration of the small intestine very similar to that described so fully by Dr John Thomson. It was found in the case of an infant born in the Maternity Hospital some years ago, when the late Dr Angus Macdonald was physician to that institution, and it was now in Dr Barbour's museum. A note of the specimen would be found in the *Transactions of the Edinburgh Obstetrical Society*, vol. x. p. 229. The stomach was much distended, and at its pyloric end was another dilatation almost as large as the stomach, which was probably the first part of the duodenum. There was no communication between this and the second part of the duodenum, which ended blindly, and with the pancreatic and bile ducts, which were patent, opened. The infant developed jaundice shortly after birth, vomited constantly, and passed neither urine nor meconium. It died on the sixth day. With regard to the appearance of coloured stools in Dr Thomson's case, Dr Ballantyne thought the explanation that the colour was due to microbes and not to bile was the only feasible one. In the intestine at birth there were no bacilli, but very soon afterwards these entered per anum, and it was conceivable that they might have given the colour to the subsequent stools, although the first were clay-like.

V. *Dr J. W. Ballantyne* contributed his STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY, which will appear in a future number of this Journal—

2. Clinical Notes of Four Cases and Description of two Specimens of General Fœtal Dropsy;
3. General Dropsy of the Fœtus, Symptoms, Pathology, and Pathogenesis;
4. General Dropsy in the Twin Fœtus.

*Dr Brewis* was sure the Society was greatly indebted to Dr Ballantyne for his interesting and valuable contribution. It was not a paper which one could criticise, but he congratulated Dr Ballantyne on the graphic manner in which he had handled the subject, and also on the excellent illustrations which he had sent round. The paper would enhance in a large measure the value of the *Transactions* of the Society.

*Dr P. Strassmann* (*Berlin*) remarked that he had observed in Giessen a case of *hydrops fœtus universalis* with hydramnios, where the post-mortem examination showed a great *hernia diaphragmatica*, the lungs being quite compressed. The woman had borne malformed children several times, some of them also with symptoms of dropsy. The seventh pregnancy was the above mentioned; the eighth resulted in abortion of a *mola hydatidosa* at the end of the third month. There was no syphilitic history either of the mother or the father, the latter being a chronic alcoholist. The diagnosis in those cases, where the head is already born, is not so easy, but can be ascertained by exploration under narcosis with four fingers. The attempts to extract the body of the fœtus might result in tearing of the dropsical parts; therefore the fœtus having no chance of life, it was the best plan to tap the ascites if the delivery gave any difficulty.

*Dr J. W. Ballantyne* felt that he ought not to delay the Society longer after the attentive hearing they had accorded to his somewhat lengthy communication. He was interested to hear an account of Lohlein's cases from the lips of an eye-witness (Dr Strassmann), and had been struck by the close resemblance of that case to his own. He hoped to bring forward some cases of localized dropsy of the fœtus at a future meeting.

VI. *Dr John Thomson* read his paper on A CASE OF CONGENITAL

OBLITERATION OF THE GALL-BLADDER ASSOCIATED WITH NUMEROUS OTHER MALFORMATIONS, which will appear in a future number of this Journal.

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## ROYAL MEDICAL SOCIETY.

*Feb.* 19.—Dr Miles in the Chair. *Dr Fuller* gave a communication on "Popliteal Aneurism." After discussing the causes and methods of treatment of the disease, he read the notes of a very interesting case in which symptoms of suppuration appeared, but the aneurism was found to be in process of cure. Some discussion followed, in which Drs Cockburn and Giles, Messrs Pringle, Davidson, and Leslie took part.

*Mr Hutchison* read a paper on "Local Dropsies," in which he stated the generally accepted theories of dropsy, and then read notes of several cases of local dropsy he had seen in rheumatic patients. These he accounted for by an increased local production of acid in the blood, causing increased transudation. In the discussion which followed the views put forward were subjected to considerable criticism, especially by Dr Fitzgerald and Mr Keng. Drs Fuller, Melville, and Crerar, Messrs J. Wallace, D. C. Watson, and Pringle also spoke.

*Mr Hamilton Lowe* then read his dissertation on "Addison's Disease," in which he reviewed the symptoms and morbid anatomy of this affection. Some discussion followed on the relation of malignant tumours of the supra-renal capsules to Addison's disease by Messrs Leslie, Hutchison, Keng, and Dr Giles.

*March* 4.—Dr Fitzgerald in the Chair. *Mr Pringle* showed a patient on whom the operation of resection of the shaft of the femur had been performed with very satisfactory results. Drs Fuller and Crerar made some remarks on the subject.

*Dr Crerar* demonstrated a simple method of performing Artificial Respiration which he had found useful, and which, he claimed, could be kept up for a long time without assistance. Drs Miles, Fuller, and Giles, and Messrs Carmichael and D. C. Watson spoke on the subject.

*Mr Keng* read a paper on the "Nature of Hysteria." After briefly indicating that hysteria was an affection which was universally distributed, and of which there was mention made in the oldest records, the writer proceeded to discuss the theories of its nature which had been put forward. These he considered unsatisfactory, and he therefore went on to describe the nature of hysteria as a psychico-chemical disturbance of the higher nervous centres. The milder cases he believed to be due to perverted functions of the nerve-cells, the metabolism of which, though altered, being retained within the normal range of activity. The more severe forms resulted from undue depression or exaltation of the function of the nerve-cells, depending upon morbid histo-kinesis and consequent discharge of toxic products into the system. The paper was discussed by Drs Miles and Orr, and Messrs Watson and Hutchison.

*March* 11.—Dr Fuller in the Chair. *Dr Livingstone* showed a woman, 29 years of age, suffering from Xerostomia, which followed severe neuralgia from the teeth. He also referred to various recorded cases, and showed that the majority had occurred in women over 50 years of age. He then alluded to the probable causes. Dr Chasseaud and Messrs Keng and Hutchison discussed the cause of the symptoms.

*Dr Fuller* read notes of a case of Abscess of the Bladder following Aspiration in Septic Cystitis. He believed that aspiration was not such a safe operation as was usually stated. Drs Miles and Giles referred to cases they had seen of bad results following aspiration.

*Mr D. C. Bremner* then read his dissertation on the "Relation of Croup to Diphtheria." He discussed in a very able manner the evidence for and against the identity of the two conditions, and came to the conclusion that there was evidence of the existence of membranous laryngitis distinct from diphtheria. Specimens of the organism and false membrane were shown under the microscope. Drs Turner, Giles, and Drummond, and Messrs Leslie, Fowler, and Keng spoke of the diagnosis of diphtheria and other points suggested by the paper.

*Dr D. Stewart* read a paper on several cases of Hyperpyrexia which had been treated by means of cold baths. Some discussion regarding the nature of the cases was taken part in by Messrs D. C. Watson, Leslie, Keng, and Alexander.

# Part Fourth.

## PERISCOPE.

## MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Syzygium Jambolanum in Diabetes Mellitus.—C. Raimondi and U. Rossi (*Gazz. Med. Lombarda*, 16th January 1892) report a case of diabetes treated with syzygium jambolanum. A woman, aged 58, had been diabetic for a considerable time. On admission she was much wasted, and presented the three symptoms—polydipsia, polyphagia, and polyuria. The amount of urine passed daily was on the average 6000 c.c., which quantity contained about 300 grammes of sugar. The patient was first put upon an abundant nitrogenous diet—chicken, veal, fish, eggs, and fat, with green vegetables—in order to see the effects of this alone. No bread or pastry was allowed, and her drink consisted of one glass of milk daily, with water, a little wine, and a saline mineral water—

chloride and sulphate of soda. Under this diet the patient increased rapidly in weight and strength, but the percentage of sugar remained high (90 to 100 grammes per diem). After a month's observation preparations of jambul were given, either the tincture (from the bark), the liquid extract (seeds), or the powdered seeds. The dose commenced at 1·5 to 2 grammes, being increased every three days to 4, 6, 10, 12 grammes, and so on for a month. The drug was then discontinued for a week, and then resumed. In all, from 1st May to 15th June, the patient took 200 grammes of liquid extract and 100 grammes of powdered seeds. The effects may be summarized as follows:—There was progressive general improvement, diminution of the polyphagia, less diminution of the polydipsia and polyuria; the sugar was, however, reduced from 25 per cent. to 11·9 per cent. The extract seemed as useful as the powder, but it required to be used in large doses. During the suspension of the drug the sugar rose again to 13, 17, 19 per cent., decreasing again when the jambul was resumed. The patient gained 10 kilogrammes in weight during her stay in hospital. The sugar was reduced to 28 or 30 grammes in the twenty-four hours. The authors consider that in the above case the advantage of combining the use of jambul with the meat diet are manifest, and they point out that the drug acted almost specifically in reducing the amount of sugar passed. The same authors reported another case with equally favourable results (*Rif. Med.*, 9th September 1891). The authors consider that many of the contradictory results with jambul may be due to the fact that under that name are known a number of different plants in India.—*British Medical Journal*, 5th March 1892.

INJECTIONS OF CORROSIVE SUBLIMATE IN TETANUS.—Celli (*Arch. Ital. di Pediatria*, November 1891) reports a case of severe tetanus successfully treated by injections of corrosive sublimate. The patient was a child in whom tetanus appeared after a wound of the sole of the foot. Free incision and antiseptic dressings were first tried, but without avail, the symptoms increasing in gravity. The plan, first practised by Baculo, of injecting corrosive sublimate was tried. During seven days nine injections were given hypodermically, each consisting of 0·5 centigramme dissolved in water. From the time of commencing this treatment a progressive improvement was observed, and on the eighth day the patient was completely cured. As a direct result of the injections, there were noticed progressive fall of temperature and pulse-rate, with gradual increase in diuresis.—*British Medical Journal*, 12th March 1892.

BROMIDE OF STRONTIUM.—Sée has tried the bromide of strontium in certain affections of the stomach with good effect. He used as a minimum dose 30 grains, and as a maximum dose 60 grains. The salt was found to be superior to sodium, and was employed in thirty-two cases of indigestion which had hyperacidity or dilatation of the stomach, with pain and marked flatulency. The digestion was complete for proteids, but imperfect for the fats and starches. In all the cases there was rapid modification of the symptoms, and in a number a complete cure. In eight cases of too little acidity the drug produced the same effects as in the cases of hyperacidity, but in one case no results were obtained (*La France Médicale*, 30th October 1891).—*Therapeutic Gazette*, February 1892.

Sodium Salicylate for Pleural Effusions.—"To the Editors of the *Therapeutic Gazette.*—Dear Sirs,—Apropos of an article in the *Gazette* for December 1891, entitled 'The Use of the Salicylates in Pleurisy,' I beg leave to report the following case:—Two years ago a Swede, by occupation a coal miner, consulted me for shortness of breath, weakness, and inability to work. He was pale and anæmic, and upon examining him I found that there was flatness on percussion over one side of the chest, and the respiratory murmur was absent. Having recently read in a medical journal that salicylate of sodium acted well in getting rid of pleuritic effusions, I resolved to try it, and ordered him twenty-four capsules, each of which contained seven grains of salicylate of sodium. Of these capsules he took from two to three a day, drinking a tumblerful of water with each dose, so as to dilute the medicine and prevent it from irritating the mucous membrane of the stomach. After taking all the capsules, he called upon me again, and on examination I was surprised and delighted to find that the effusion had completely disappeared, and that the respiration murmur had reappeared. The result of the treatment was a revelation to me. I hope that the profession will give the salicylate of sodium a trial in subacute and chronic pleural effusions, and believe that they will be surprised and gratified at the results which they obtain.—Very truly yours, J. H. Straugahn, M.D., Lexington, Mo."—*Therapeutic Gazette*, February 1892.

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## OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. Allan Jamieson, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

Lichenification of the Skin.—Under this term Brocq describes a change in the condition of the integument, to which he thinks but little attention has been hitherto paid, and which he believes explains the true nature of some skin affections previously misunderstood. If friction of any kind be exercised incessantly on any individual portion of skin, the integument thus irritated undergoes little by little modifications in its appearance, its texture, and its functions,—in particular, in the numerous cases where itching is experienced, if the pruriginous parts are constantly being injured by scratching, be it with the nails, be it by the clothes, or by any instrument, there is rapidly produced, as Jacquet has shown, a cutaneous alteration, consisting essentially in chronic inflammation. It is thus that one sees the derma become by degrees infiltrated with embryonic elements, grow thick, become hard and rugose, the papillæ hypertrophy, and group themselves sometimes so as to simulate irregular and unequal papules, which bear no relation either to the pilo-sebaceous or the sudoriparous glands. Soon the skin presents a very special appearance, characterized by an exaggeration of its natural folds, which form a sort of cross-hatching, with meshes regularly arranged and of various size, and by more or less marked infiltration, the skin having at the same time lost its pliancy and normal consistence. Such is the morbid process which he calls lichenification. Yet all those who have pruritus and scratch do not lichenify the affected parts with equal rapidity. It would seem as if there were cutaneous affections which so modify the vitality or the nutrition of the tissues that lichenification is readily produced, while in other pruriginous disorders the resistance of the skin to friction seems to be normal or even increased. There are also persons apparently predisposed. Lichenification can thus be produced in a skin to all appearance previously healthy; in such cases it is primitive. Or it may be produced in a skin already the seat of some disease, then it is secondary. The primitive form may either be circumscribed or diffuse. The former of these he regards as identical with lichen circumscriptus. This differs from eczema of the ordinary type by its pathogeny, by the severity of pruritus, and by its absolute dryness. It differs from lichen planus by the want of exactness in its papules, which have neither the colour, the polygonal configuration, nor the brilliancy of those in lichen planus; yet the distinction is difficult at times. It differs from prurigo, as understood by Hebra, by the fixity and greater circumscription of the patches, by the absence of pseudo-urticarial papules, and by the localization. The secondary variety is very frequent. In fact, nearly all the pruriginous affections of the skin in which the manifestations are sufficiently fixed, give rise to marked damage; for the patient scratches incessantly the cutaneous lesions, which after some time become complicated by lichenification of the integument. On the contrary, the pruriginous affections, whose manifestations are essentially fugacious or ephemeral or mobile, as, for example, urticaria, as dermatitis herpetiformis, notwithstanding its protracted duration, are not accompanied by lichenification, except occasionally, and in cases of exceptional intensity. The conditions which lead to lichenification are met with very often in chronic eczema, particularly when this is localized on the neck, or the genital organs, or near the anus. The same morbid process is seen in the prurigo of Hebra, in some instances of itching psoriasis, in association with lichen planus, and in certain cases of pernicious lymphodermia or of mycosis fungoides.—*Des lichénifications de la Pean, et des Névrodermites,* par M. le D. Brocq, Paris, 1891.

THE ORIGIN OF ECZEMA.—Brocq, after tracing in an exhaustive manner the various views which have been and are held as to the nature of eczema, or of the eczematous processes, for he regards it as complex, concludes by the following remarks. From true eczema must be separated:—1. The cutaneous lesions apparently eczematous, caused by various irritants, which are nothing more than traumatic inflammations of the skin, such as those caused by animal parasites, as acari or pediculi; 2. Impetigo; 3. Dysidrosis; 4. Chronic lichen simplex. We designate under the term eczemas, dermatoses of *apparently* spontaneous origin, or developing as the result of a cause of an occasional nature, in itself insufficient to determine the eruption, objectively characterized by a more or less accentuated inflammation of the skin, that is to say by redness, infiltration, sometimes by vesiculation and oozing of a serous fluid which stiffens linen, finally by desquamation of the epidermis. It cannot be too often repeated that such is not a well-defined disease, rather a non-homogenous group reunited by a common objective bond—their eczematous aspect. It is possible that these various dermatoses own different causes, thus explaining up to a certain point the divergences of opinion current as to the etiology of eczema. Still, one must combine the two great theories which consist in regarding eczema either as the external manifestation of a general condition, or as a purely local disorder. It is certain that the recent idea of Unna as to parasitic eczema best explains the majority of cases. By interposing the question of soil, one can understand how eczema developes by preference in certain constitutions, how by modifying the diet, by favouring the nutritive changes, the disease may at times vanish, since the soil is thus rendered unsuitable for the growth of the parasite. In admitting the theory of revulsion, this explains, *up to a certain point*, how it is possible that a cutaneous lesion of external origin may sometimes replace various visceral manifestations. The importance and success of local treatment is thus explained. Still, it is difficult to account for, on this hypothesis, all the cases which have been grouped under the name of eczemas. With respect to the pathogenic organism, if it exists, it is necessary to know if it is present under normal conditions of the skin, if it is a common parasite which becomes offensive in certain particular cases, which is likely, or if it is an accidental parasite. This point is one of primary importance, since on its solution hangs the question of the contagiousness or transmissibility of parasitic eczemas. In fact, if their parasites are common parasites, these affections cannot be looked on as contagious, each person creates his eczema without the least foreign intervention. If, on the contrary, these parasites are accidental, the diseases only require for their production the deposition of the special morbid germ on prepared soil, and thus an eczematous individual is possibly dangerous to one predisposed to eczema. Such hypotheses, however attractive, cannot be accepted definitely till the part played by parasitism in eczema has been scientifically and strictly determined; till then we must hold to the belief that the general condition plays a considerable part in the genesis of these complaints. And conversely, by arguments which are irrefutable, since they are based on facts, that local treatment is of the utmost importance.—*La Semaine Médical*, 2nd December 1891.

ŒSYPUS.—This is the name applied by Drs Ihle and Taenzer to the crude wool-fat from which lanolin is prepared, and over which, notwithstanding its somewhat peculiar odour, it would appear to possess considerable advantage. Taenzer has used it solely in the form of a paste, for the preparation of which it is mixed with equal parts of olive oil. If this is not done, and any pulverulent substance is incorporated with it, the resulting mass is too tough to smear on the skin. Should fat or vaseline be used as a diluent, and if tar or pyrogallol be mixed with this, a compound of stony hardness eventually results. The mixture with olive oil, on the contrary, when suitable quantities of oxide of zinc, silica, carbonate of magnesia, or starch, etc., are added, produces a satisfactory paste, which remains soft, is easily applied, covers the affected part from its somewhat sticky consistence very thoroughly, and is exceptionally well borne. That with oxide of zinc or starch, from its absorbent and desiccating effect, is indicated in all oozing eruptions, and is almost a specific in pustular eczema. One compounded with salicylic acid, orcein, resorcin, or subnitrate of bismuth, affords valuable aid in sycosis coccogenes. As—

| | | |
|---|---|---|
| ℞ | Bismuth subnit., | 5·0 |
| | Zinci oxidi, | 20·0 |
| | Œsyp., | |
| | Ol. olivæ, | ana q. suff. |

M. fiat pasta mollis.

While this is used, washing and shaving the affected parts must be discontinued, and the hairs round the diseased areas should be epilated. In the obstinate eczema of the face in children, good was obtained from the use of œsypus. Washing must be interdicted, and the fresh paste smeared over what remains of that previously applied. In the weeping form a mixture of olive oil and œsypus each ten parts, with twenty to twenty-five of starch, usually suffices; but in the dry form the gray powdered zinc should be used in place of the oxide, as its reducing action comes into play on the stubborn papular infiltration. Ihle confirms these observations of Taenzer's, and adds that he has found the simple inunction of œsypus of value in relieving the itching in prurigo and many instances of pruritus. In seborrhoic eczema it relieves the itching of the scalp when used as a pomade, for which its consistence very well adapts it. When rubbed in with a stiffish brush it maintains the skin of the scalp pliant and unctuous, and prevents the formation of scales. He cites some cases where the œsypus and olive oil paste was employed with effect, where Lassar's starch-vaseline paste caused irritation. With these advantages œsypus is a very cheap substance. Messrs O. Hecht, Brandvorwerkstrasse, 33, Leipzic, sell it at rather less than 5½d. per pound.—*Monatshefte für prakt. Dermatologie*, 15th November 1891.

ON THE ACTION OF CARBOLIC ACID AND OIL OF CLOVES APPLIED LOCALLY IN LUPUS.—Unna, who had already recommended these remedies in the treatment of lupus, has studied the effects of repeated pencillings in sections made from portions of the tissues while under treatment, and has fully described the appearances. As regards carbolic acid he draws the following conclusions:—Carbolic acid attacks preferentially the older and already disorganized elements, and rapidly induces molecular destruction—therefore the disappearance of the lupous plasmoma and fibroma under cauterization by carbolic acid is perfectly conceivable. Whether in this process of absorption the tubercle bacilli persist or die, can, for known reasons, be better determined clinically than histologically. In accordance with his previous experience, he is certain that in some cases single or repeated active cauterization with carbolic acid can cause the disappearance of lupus nodules without further treatment. The number of cauterizations must be suited to the depth to which the nodules penetrate, and they must be persevered in steadily and without intermission with undiluted carbolic acid. As regards clove oil, clinical observation teaches, that by timely interrupted application of clove oil till separation of the whole epithelium occurs, all the phenomena soon show retrogression, with diminution in the volume of the lupous fibroma and plasmoma. A better preliminary to absorption than the far-reaching interstitial œdema which occurs can hardly be conceived. If, therefore, the distinct action of clove oil on the lupus nodules is slight, in a therapeutic point of view insufficient, and cannot compare with cauterization with carbolic acid, yet the basis for its employment is to be found in the slighter directly injurious action, in the absence of complete necrosis, and the small amount of harm done to the nuclei, while the indirect effect, the reaction in form of serous inflammation, is much more considerable than after cauterization by carbolic acid. The cauterization with clove oil does not with certainty act destructively on the tubercle bacilli, while such an effect of carbolic acid is, at least, probable from clinical experience. —*Monatshefte für prakt. Dermatologie*, 1st December 1891.

TREATMENT OF LUPUS.—Dr G. H. Fox, after reviewing the various methods employed, remarks, of the different substances applied to ulcerating lupus and to the curetted surfaces, with a view to the complete destruction of the lupus tissue, no one has perhaps met with more favour than pyrogallol. This was introduced by Jarisch, who recommended a ten per cent. ointment to be applied twice daily, after thorough curetting of the patch. At the end of three to five days, or when the surface appears swollen and of a dirty grayish hue, iodoform is to be plentifully applied, which tends to check the pain produced by the ointment. This is covered with linen smeared with boric acid ointment, and bandaged for several weeks, until the suppuration lessens and healing begins. Mercurial plaster is now applied, and after four or five weeks the same cycles of curetting, pyrogallol, iodoform with boric acid dressing, is repeated in order to prevent the return of the lupus by miliary infiltration. Fox uses a stronger ointment of pyrogallol, varying from 25 to 50 per cent., which greatly shortens the duration and adds to the efficacy of the treatment. The application is sometimes quite painful for the first or second day, and may give rise to considerable inflammation of the part. But the continued use of the strong ointment soon produces a benumbing sensation in the locality to which it is applied, and no further complaint of pain is made until the ointment is discontinued and a simple dressing substituted. This application, coinciding with the separation of the sloughing tissue, will often be regarded by the patient as more painful than the pyrogallol. When the dirty, brownish, pultaceous slough has separated and left a clean, raw surface, the employment of mercurial plaster will convert the ulcer into a smooth pliable cicatrix. This plan is equally as useful in rodent ulcer as in lupus. —*Boston Medical and Surgical Journal,* November 12, 1891.

EPILATION: ITS RANGE OF USEFULNESS.—Zeissler points out that in the multitude of new remedies which appear, often to vanish as rapidly, old ones of much value are apt to be forgotten. Epilation is one on which discredit has recently been cast. It seems impossible to ascertain for how long it has been in vogue in the treatment of certain skin diseases, but since Wertheim's recommendation of this mode of treating sycosis, it has been generally accepted as valuable in that disease. He advises epilating forceps with narrow blades, so as to seize readily individual hairs. The hairs to be removed should be cut short, traction should be made in the direction in which the hair grows, and all adherent crusts are to be got rid off. Areas should be systematically cleared. In sycosis, of late years a crusade has been preached against epilation by Unna, and especially by Rosenthal, who considers it unnecessary, and claims good results by simple shaving, and, as an essential part of the treatment, the application of a sulphur and tannin paste. Zeissler is so convinced of the importance of epilation that he would rather give up all adjuvant treatment by ointments or lotions than abandon epilation. At the same time he ascribes to salves, lotions, soaps, and shaving their proper place. In sycosis of the vibrissæ he finds epilation of the utmost service. In favus there seems a consensus of opinion as to the absolute necessity of removing in this way the diseased hairs. More than in any other parasitic trouble, it is important in treating favus to keep epilation up for a period sufficiently long to insure a healthy growth of hair, and the final success depends solely on the degree of persistency and energy with which the work is carried on. There is a form of pustular eczema, which usually affects the back of the hands or fingers, or the extensor surface of the lower limbs. The pustules are commonly seated round and are perforated by a hair. And the hairs epilated show the exact appearances of the roots so regularly found in sycosis. Methodical epilation here produces great benefit. In alopecia areata epilation of a small zone encircling each area serves to prevent the disease spreading beyond the epilated border. Besnier uses a sublimate lotion, but Zeissler prefers pyrogallic acid locally.—*Journal of Cutaneous and Genito-Urinary Diseases*, December 1891.

## PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Gynæcology, and on Diseases of Infancy and Childhood, School of Medicine, Edinburgh.

Two Cases of Incontinence of Urine cured by Massage of the Urethra and Neck of the Bladder.—Dr Narich of Smyrna narrates two cases of incontinence of urine, or rather of frequency of micturition, in which he employed massage with good results. The method adopted differed slightly from that of Thüre-Brandt of Stockholm. Each sitting was divided into three stages. In the first, the vesical region near the cervix was massaged by the index finger introduced into the vagina; in the second, the body and sphincter of the bladder were acted on; and in the third, there was massage of the urethra. Nine sittings sufficed to cure the first case, and seventeen were necessary in the second instance. Dr Narich advises that a friend of the patient be present during the manœuvres, and brings forward arguments to disprove the alleged immorality of this method of treatment.—*Bulletins et Mémoires de la Société Obstétricale et Gynécologique de Paris*, November 1891.

On Accommodation in Obstetrics.—Dr Marius Rey contributes a paper on the mechanism of the movement of internal rotation of the fœtus in labour. He thinks that it is the trunk of the fœtus that gives to the head the first impulse that decides the direction in which it must turn. His theory is founded chiefly on two propositions—1. When a body propelled by a force meets a plane of resistance in a direction perpendicular to this plane it is stopped; 2. When it meets the plane of resistance in an oblique direction, it continues the movement on the side of the larger angle of incidence—that is to say, of the obtuse angle. Dr Rey applies these propositions to the mechanism in the various presentations and positions. In L.O.A. cases, for example, he points out that the angle formed by the dorsal plane of the fœtus with the internal iliac fossa looks downwards and inwards, and that the angle formed by the left lateral plane with the surface of the left psoas muscle is obtuse, and looks downwards, forwards, and outwards; then, under the influence of the *vis a tergo*, the posterior half of the fœtus, the left shoulder, will be driven downwards, forwards, and outwards, and the fœtus will turn until the dorsal plane becomes anterior. At this point rotation will stop, for the *vis a tergo* has in this new situation no other effect than to push it downwards and backwards. The head joins in this movement of rotation of the trunk, and with all the more ease since the occiput, resting on a plane of resistance of the cavity inclined downwards, forwards, and inwards, glides in this direction. The two movements given to the trunk and head are, in this case, in the same direction, and rotation is easy. In posterior positions of the occiput the movement of rotation will be more difficult; the two movements given to the trunk and head are not necessarily in the same direction, but the trunk presents a wider surface than the occiput; it receives then from the *vis a tergo* a greater impulse than the head, and the movement that it executes must predominate. Dr Rey then explains on this theory the anomalies of head-rotation which sometimes occur, and proceeds to apply the same principles to the movement of internal rotation in face and pelvic presentations. — *Bulletins et Mémoires de la Société Obstétricale et Gynécologique de Paris*, No. 12, 1891.

A CASE OF TRIPLE CEPHALHÆMATOMA. — Dr Oui has put on record a case exhibiting the rare condition of a triple cephalhæmatoma. The infant that exhibited this abnormal state of affairs was born precipitately whilst the mother was in the erect posture, and fell to the ground, the cord breaking. There was no caput succedaneum, but there were some bruises on the head and neck of the child. Five days after birth two rounded swellings were noticed on the postero-superior parts of the parietal bones; that on the left side was much larger than that on the right, and both increased in size, and were surrounded by osseous rings. On the sixth day after birth a third swelling was noticed, much smaller than the other two, and situated on the occipital bone; this one was opened with the knife, and some pus escaped. The hæmatoma on the left parietal was treated by evacuation and compression; that on the right side by compression. The parts were returning to their normal state when the infant was last seen. The author draws conclusions in favour of surgical intervention in cases of cephalhæmatoma.—*Archives de Tocologie et de Gynécologie*, October 1891.

DIFFICULT LABOUR DUE TO GENERAL ŒDEMA OF THE FŒTUS. —An interesting case of this rare obstacle to easy delivery is recorded by G. Raineri. The patient, 42 years of age, had had eight previous pregnancies, which had all gone to the full term and resulted in the birth of healthy infants. She had always had good health, and there was no syphilitic history either in herself or in her husband. Her ninth pregnancy had advanced as far as the eighth month, when labour supervened. She was then profoundly anæmic, had œdema of the lower part of the body, her skin had a greenish-yellow colour, and the abdomen was enormously distended. It was thought that there might be twins, but the diagnosis could not be made with any certainty. The fœtus presented by the breech, and when the membranes ruptured one foot came down. There was some excess of liquor amnii. The foot and leg were œdematous, and when traction was made, the soft parts were torn through up to the bone. The abdomen of the fœtus was opened by means of scissors, some fluid escaped, and then the trunk of the fœtus was delivered, but the neck broke, and the head was left in utero. Ultimately the head was extracted by the cranioclast after craniotomy had been performed. The mother was in a very critical state during labour, recovered somewhat afterwards, but died of puerperal fever and vulvar diphtheria ten days after parturition. The fœtus, a male, weighed 3000 grammes, and was dropsical all over. The face was like that of a bull-dog; the head was sessile on the trunk, although all the cervical vertebræ were present; the subcutaneous fat was abundant; the muscles were slightly developed and pale, and the skin was shining and friable. All the viscera were deeply anæmic and pale. The liver and kidneys showed a diffuse infiltration with white cells, the spleen showed nothing of interest, and the bone tissue was normal. The placenta was large, œdematous, and anæmic; neither in it nor in the viscera were there any traces of microbes. The author regarded the general œdema as due to obstruction in the liver and kidneys, and he would explain in the same way the ascites and hydramnios.—*Gazzetta Medica di Torino*, No. 2, 1892.

SPONTANEOUS EVOLUTION WITH A FULL-TIME FŒTUS.—G. Raineri gives the account of a labour in which spontaneous evolution occurred, notwithstanding the fact that the fœtus, a male, was at the full term, weighed 3400 grammes, and was 58 cms. in length. The mother was pluriparous, and was 34 years of age. She had had six previous confinements; the two first were natural, in the other four manual interference was necessary, and the children were dead born. She had in this, her seventh confinement, been attended by a midwife, the waters had escaped, the presentation had been recognised, and a large dose of ergot had been given. She was brought into the Maternity of Vercelli, when it was found that the fœtus was dead, and that the external measurements of the maternal pelvis were normal. Before practising embryotomy, Raineri gave an enema of chloral hydrate, and took other means to relieve the uterine tonic spasm. Then the spasm retracted, strong uterine pains set in, the arm of the child was expelled, the right side appeared at the vulva, and the labour was completed in the mode known as classical spontaneous evolution. There was no laceration of the perineum, and the woman made a complete recovery.—*Annali di Ostetricia e Ginccologia*, January 1892.

SOME MOOTED POINTS CONCERNING THE VOMITING OF PREGNANCY.—Dr T. Ridgway Barker comes to the following conclusions concerning the vomiting of pregnancy. It is, he says, due to a reflex irritation produced by the developing ovum acting upon an exalted nervous system; it is not an affection of great gravity, active treatment is rarely demanded, its severity is no indication of the character of the subsequent labour, and when it persists beyond the period of quickening, it is due to pathological causes, which must be discovered and treated.—*The St Louis Courier of Medicine*, February 1892.

DYSTOCIA DUE TO A CYST IN THE LIVER OF A FŒTUS.—Dr Bagot read an account of an almost unique case in which a large simple cyst of the left lobe of the fœtal liver was the cause of great delay in labour. The woman had had one healthy child previously, and in this, her second labour, the head was born, but all the efforts that the students in attendance could make were insufficient to deliver the trunk. Dr Bagot passed his hand into the uterus, and perforated the abdomen of the fœtus with Smellie's scissors. A yellow fluid poured out, and the child, a male, was then easily delivered. Only an imperfect autopsy was permitted, but save for the hepatic condition above mentioned the viscera appeared normal. The gall-bladder was absent. The mother was apparently syphilitic.—*Dublin Journal of Medical Science*, January 1892.

A CASE OF COMPLICATED LABOUR.—Dr J. F. Jenkins was called to attend a primipara, 21 years of age, who suffered from œdema of the face and limbs due to nephritis. The membranes had ruptured, but labour was not going on. The next morning labour set in, and with it a convulsive seizure. The os was partly dilated, and a slightly fluctuating tumour was felt presenting. Another convulsion supervened, and Dr Jenkins applied forceps with some difficulty, and succeeded in delivering the breech with a large tumour attached to it; the child, a viable female, was soon thereafter born. There followed a profuse hæmorrhage, and the placenta had to be separated manually. The child lived only a few hours. The tumour, which was attached to the buttocks, was larger than the child's head—it measured at its base 13 inches in circumference. It had no communication with the spinal canal, and it was composed of multilocular cysts containing fat and a gelatinous substance.—*The Journal of the American Medical Association, Chicago*, January 23, 1892.

CONTRIBUTIONS TO THE HISTOGENESIS OF THE PAPILLARY CYSTOMATA OF THE OVARY.—From the Pathological Laboratory of the Johns Hopkins University comes a very interesting contribution to ovarian pathology by Dr J. Whitridge Williams. He gives a good description of four cases—one of papillary cyst in the mesosalpinx, one of superficial papilloma of the ovary, and two of commencing ovarian papillary cyst. The descriptions are rendered clear by some excellent drawings. He rejects the Wolffian body theory of origin of such cysts, and considers them to be purely ovarian. He states that it is possible that they may arise in any one of the three following ways: First, from the Graffian follicle. This is probably the usual point of origin for the development of these growths; and according as the membrana granulosa is ciliated or not, so the growth will be of the ciliated or non-ciliated variety; and according as the affected follicles grow within the folds of the broad ligament or not, so the growth will be intra-ligamentous or not. Second, from the germinal epithelium. This is the most frequent and perhaps the only source of origin for the superficial papilloma, and probably is usually the starting-point for the usual form of the multilocular papillary cystomata. Third, from the tubular epithelium. It is probable that some cases (as in the author's first one) are developed from ingrowths of the epithelium of the tube into the stroma of the ovary. A useful table of the literature on the subject of this paper is appended.—*Bulletin of the Johns Hopkins Hospital, Baltimore,* December 1891.

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## SURGICAL PERISCOPE.

By KENNETH M. DOUGLAS, M.D., F.R.C.S. Edin.

SALICYLATE OF SODA IN GONORRHŒAL INFLAMMATION ABOUT THE NECK OF THE BLADDER.—Dr Meynier has found the drug to be of notable value in these cases, given in hourly doses, amounting at first to a daily dose of 6 grammes, if needful increased to 10 grammes daily. Commonly symptoms abate after the second day; and when good result follows, the dose must be gradually decreased till 3 grammes daily are given; this dose is continued till risk of recurrence seems gone. The drug fails in relieving the same affection in its chronic stage.—*Archives de Méd. Militaire,* October 1891.

PYLOROPLASTY FOR CICATRICIAL OBSTRUCTION.—Senn regards this operation as the safest and most efficient means of treatment, and records two cases in which he carried it out. The advantage claimed is that not alone is the obstruction done away with, but a new pylorus is created. The cicatrised tissue of the pylorus is divided in the long axis freely, and the wound stitched up in the opposite direction, *i.e.,* transversely to the long axis of the stomach. The new pylorus is composed of tissue, partly from the anterior stomach wall and partly from the duodenum, its posterior wall being formed by the narrow, contracted pylorus. "Recurrence of stricture is a physical impossibility." In eight cases already reported the results have been satisfactory.—*Med. Press and Circular*, February 10, 1892.

TREATMENT OF CYSTITIS BY INJECTIONS OF CORROSIVE SUBLIMATE SOLUTION.—M. Guyon finds that this solution, of the strength of 1 to 5000, is a valuable means of local treatment in various forms of cystitis. Its action was tested in twenty-six cases of tubercular, gonorrhœal, prostatic, and other forms of cystitis. The solution must *not* be alcoholic, and distilled water is the best vehicle. At first 20 to 30 drops of 1 to 5000 solution are injected into the prostatic urethra; later one may employ a solution of 1 to 1000, or even 1 to 850 (employed by Guyon in one case), and may inject the whole contents of a syringe holding some 4 grammes, leaving the solution in the bladder, which must be empty before injecting. The more severe the pain, the more carefully must the injections be regulated as to quantity. In tubercular cases the results were most encouraging; in chronic gonorrhœal cases the remedy is a valuable resource; two cases of cystitis in patients with prostatic trouble were promptly relieved. Washing out the bladder proved to be of much less value; indeed, it was only when all washing was stopped, and mere injections adopted, that the cases began to improve as to bladder capacity and frequency of micturition. In no case did any accident, general or local, follow the use of the sublimate.—*Ann. des Mal. du Organs Génito-Urinaire*, January 1892.

URINARY INFECTION.—In a paper bearing this title M. Hallé discusses the *rôle* played by micro-organisms in the various infective states, local and general, to the occurrence of which cases of urinary disease are liable. M. Hallé points out how Velpeau first, in 1840, formulated the theory of general poisoning from some noxious agent in the urine. Pasteur later promulgated the view that the ammoniacal changes in urine were the result of the introduction of a microbe (micrococcus ureæ). Of late years various pathogenic organisms have been found in purulent urines, and their discovery led observers to frame the theory that the bladder might form a local source from which the system generally might be infected.

M. Hallé carefully traces the discussions as to the relations which various organisms bear to one another, and to the pathological conditions of which they are supposed to be the cause. The points to which the author addresses himself are:—(1.) What are the microbes capable of determining suppuration in the urinary tract? (2.) Which of these can bring about general "infection?" (3.) How do they reach the urinary tract? (4.) What conditions favour their action? (5.) How is this action exercised, locally and generally? (6.) What states of the microbe, and of the infected subject, are capable of causing the degree and mode of infection to vary?

As to the first point, the fact is at the outset recalled that some most virulent microbes do not render the urine ammoniacal; ten varieties of organism are then named, which have been found as pure cultivations or associated together in the urine. The forms of organism named are the following:—*Staphyl. aureus, albus, citreus; Streptococ. pyogen.; Urobacillus liquefaciens septicus* (of Krögius); four *micrococci* described by Rovsing; and the *bacterium coli.* None of these, it is pointed out, are peculiar to the urinary tract; they are ordinary species, which acquire a special virulence only after successive cultivations in the urine and human organism.

As to the second point, Hallé states that power to cause local and general infection certainly is possessed by the *staphylococci* and *streptococci*, and by the *urobacillus* and *bacterium coli.*

As to the mode of entrance of the organisms, there is still controversy. Commonly they enter by the urethra, and then usually after instrumentation; and Hallé sees reason to believe that organisms lie in the urethra, and may be carried to the bladder by the most carefully purified instrument. The necessity for more than mere introduction of the microbe into the bladder for the production of " infection " is recognised, and the usual secondary cause is believed to be stagnation of the urine, or trauma in the mucous membrane.

As to the method by which the pathogenic organisms produce the cystitis, Hallé points out that certain of them do so by rendering the urine alkaline, and then by their development inducing a suppurative cystitis; but others may act with equal virulence without inducing alkalinity of urine and consequent chemical irritation of the mucosa.

As to the local and general infection, Hallé shows that the kidneys become involved by an "ascending" process of inflammation, but may also be involved through the circulation, the "descending" or "embolic" nephritis. The general infection takes place through the blood, as demonstrated by various observers, who have found in the blood the *bacterium coli* and others of the organisms named.

Hallé is of opinion that in many instances the general poisoning is caused, not by the presence of the microbes in the system, but by their toxic products, and he has demonstrated the virulence of an intra-venous injection of a filtrate of the bacterium coli. Cases of slow chronic poisoning, as in long stagnation of urine, are, he thinks, capable of being so explained.

Hallé has found the infective powers of any one microbe to be inconstant, and believes that many facts must be taken into consideration in estimating the results of their action, notably the state of the kidneys and of the patient generally.

At the conclusion of this interesting article Hallé draws attention to the sort of immunity (as by spontaneous "vaccination" or inoculation) which some subjects of urinary disease enjoy from the serious febrile and general results of the condition, "perhaps," he says, "by a slow absorption in small doses of the poison."—*Ibid.*, Feb. 1892.

ANATOMY AND SURGERY OF THE URETER.—Dr Cabot (Boston) believes the search for the ureter in operations will be simplified by remembrance of the fact that it is adherent to the peritoneum and is always stripped up with it from the structures behind; and further, that it lies just outside that line, along with the peritoneum, adheres to the spine, and cannot readily be stripped up from it. The author believes no better plan than that of Israel need be chosen to reach the ureter in the upper part of its course, but points out that where calculi most commonly lodge the ureter cannot be reached by extra-peritoneal incision. Hitherto stones impacted near the bladder have been approached through that organ by supra-pubic operation; but having in view the risks of urinary infiltration in such a procedure, Dr Cabot suggests an approach to the ureter from behind, after the method adopted by Kraské in other conditions, *i.e.*, by removal of the coccyx and lower part of one side of the sacrum; the access is free, and the only difficulty is to find the collapsed ureter. He also suggests that "it might be possible by manipulation through an abdominal incision to work a calculus back along the ureter from deep in the pelvis to a point where it could be reached from the loin." Dr Cabot believes it best not to suture the canal, but simply to provide adequate drainage until it shall close. A case is reported in the paper.—*American Journal of Medical Sciences*, Jan. 1892.

REMOVAL OF CLOTS FROM BASE OF BRAIN—RECOVERY.—Dr Laplace (Philadelphia) records a case of basal hæmorrhage from perforating wound through the left orbit; coma, convulsions, and signs of compression existed. Trephining was done just above the zygoma, and a specially contrived instrument of malleable wire ("a miniature egg-beater") was insinuated between the dura and the skull to the cavernous sinus, and about a teaspoonful of clot was removed. Consciousness returned four days later, power of speech a week later still, and then recovery was steady and uninterrupted. The patient has anæsthesia of the left eye, and internal strabismus. —*Medical and Surgical Reporter*, Dec. 26, 1891.

## PERISCOPE OF PUBLIC HEALTH.

By HARVEY LITTLEJOHN, M.B., etc.

POPULATION OF FRANCE.—In the results recently published of the census taken on the 12th of April 1891, the chief fact brought out is the small increase of the population which has taken place. The total of the census of 1891 was 38,343,192, or only an increase of 124,289 over the previous enumeration. During the years 1881-1886 the increase was 545,855, although it only embraced a period of four years and five months, while the period up to 1891 extended over four years six and a half months. The statistics show that 269,332 marriages took place, 5457 divorces, 838,059 births, and 876,505 deaths, so that the number of deaths exceeds the births by no less than 38,446. For twenty years the number of deaths has not been so large. Never since the year 1870 have the number of marriages and births been so low. In order to explain these serious results, blame has been cast on the epidemic of influenza which caused such havoc during the first four months of 1890. It has been sought to account for the small number of births by the mortality of the years 1854, 1855 (war and cholera), and of the year 1870, when so many men were carried off in their prime. Be this as it may, one must admit that the decrease of the births in France is progressive, and that the population has remained practically stationary since the last census. It has only increased 25,000 per annum in this period, whereas during the same time the population of Germany has augmented itself by three millions, England by two millions, and Russia by six millions.—*Revue d'Hygiène*, January 20.

DESTRUCTION OF MEAT UNFIT FOR FOOD.—Ordinarily, when meat has been condemned as being of bad quality, or as having belonged to a diseased animal, it has been deemed sufficient simply to sprinkle it with petroleum or turpentine. It appears, however, that means have been discovered of washing the surface of such flesh, and then selling it as meat of inferior quality. It is, therefore, now recommended to replace this method by the interstitial injection of petroleum or turpentine, and for this purpose a trocar with lateral openings is run deeply into the muscles, and the liquid allowed slowly to infiltrate the tissues.—*Le mouvement Hygiènique.*

SIR DOUGLAS GALTON states that the only way in which, so far as he has found, the removal of dirt and fog from a large volume of air required for ventilation has yet been practically effected, is by means of a wet screen, as used at the Western Infirmary, Glasgow. The air is here renewed six times in an hour, and is first filtered and washed by being passed through a screen of cords formed of horse-hair and hemp, which is kept continually wet, and which effectually removes all dust and soot from the air. An automatic flushing tank discharges twenty gallons of water over the screen every hour, and thus washes away any substances which have adhered to the screen. The action of such a screen, it is said, removes every vestige of fog, renders the air beautifully clear and bright, and might be easily applied to private houses.—*Brit. Med. Journal,* January 20.

IN a paper by Dr Lassinari giving the results of experiments, carried out at the Institute of Hygiene in Rome, on the action of tobacco smoke on certain pathogenic organisms, he comes to the following conclusions:—1. The smoke of cigars possesses in general a true bactericide action, and more especially on the bacillus of

Asiatic cholera. 2. In epidemics of cholera and typhoid the action of tobacco smoke may be advantageous. 3. Tobacco smoke deserves serious attention in relation to the hygiene of the mouth as a prophylactic against affections of a parasitic origin of the buccal cavity.

A CRITIC in the *Revue d'Hygiène*, whom the above conclusions have not convinced, contends that sufficient allowance has not been made for the antiseptic action of the smoke arising from the combustion of organic matter, a factor not to be lost sight of, as has been recently shown. Even if this special action of tobacco smoke was more fully proved, its practical application would be almost impossible; for example, no one would attempt to give smoke either to an infant suffering from diphtheria or to an adult with pneumonia. Lastly, it must be remembered that Kuhn and Jalan de la Croix, in studying the action of various antiseptics, cultivated bacteria in tobacco infusions equally as well as in infusions of albumen and other substances.—*Revue d'Hygiène*, January 20.

DR ARMSTRONG, Medical Officer of Health for Newcastle, in a recent paper states that the trade in Newcastle alone represents a sale of probably not less than a million and a half gallons of milk per annum, costing the consumer about £100,000. At the same rate of calculation, the amount sold yearly in the United Kingdom is about 250 million gallons, representing a cost of £17,000,000. Adulteration and skimming are alike in one respect, viz., each robs the consumer by weakening the milk. In 1889, 21 per cent. of the analyzed samples of milk in London were adulterated, to an estimated aggregate loss to the consumers of £50,000 per annum on an outlay of two millions sterling. Even if, he says, one hundredth part of the so-called "milk" be in the form of water, the adulteration means an annual robbery of the Newcastle consumer to the tune of about £1000, and the British public of £170,000.

IN connexion with the question of the self-purification of rivers, the *Sanitary Record*, February 1, gives an exhaustive *résumé* of a paper published by Dr Alessandro Serafini of Rome. The following are among the conclusions come to:—1. Aeration continually kept up by the renewal of air in no way impedes the development of micro-organisms in water, and continual aeration does not contribute *per se* to acceleration of the processes of oxidation of organic matter. 2. The transformation of organic matter in water proceeds so slowly that it cannot be completed by means merely of the volume of water, even in the entire course of a river. 3. From his results, Dr Serafini is of opinion that the self-purification which, under favourable conditions, is observed in rivers does not take place by means of processes of oxidation due to the mere volume of water, but that it is due to a complex variety of factors. To sedimentation, to dilution, to the mechanical action of suspended substances which are deposited on the bottom, to movement of the waters, to low temperature, to superficial filtration on the bed of the river, and perhaps also to a certain action of the water *per se*, is due the rapid diminution of the bacteria which are contributed to rivers by sewage; while to sedimentation, to dilution, and to slow and continual processes of oxidation in the bed of the river is due the self-purification from organic substances.

THE Board of Health of the State of Massachusetts have recently published some interesting results of experiments they have conducted on sewage filtration. They have succeeded in proving that nitrification of the sewage is the work of an organism which they have also been able to isolate. The presence of air was found to be absolutely necessary for any purification of the sewage, so far as nitrification was concerned, which accounts for the fact of the great superiority of intermittent over continuous filtration. An important point established was, that nitrification of the sewage did not occur until the filter had been some time at work, which is easily explained by the nitrifying organisms requiring a certain time to multiply sufficiently to deal with the sewage. After nitrification has commenced, however, it will go on for an indefinite period, provided the quantity of sewage applied is not too large. Experiments were also made with chemical precipitants, and in the case of lime it was found that a certain definite proportion gave better results than uncertain quantities. This definite amount was that which exactly suffices to form normal carbonates with all the carbonic acid of the sewage. With other precipitants the best results were obtained with ferric sulphate and a combination of copperas and lime.

# Part Fifth.

## MEDICAL NEWS.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—The following gentlemen were admitted as Fellows and Members of the College on 8th March 1892:—*Fellows*—Wm. Joseph Kelson Millard, Bristol; Henry Francis Elliot, Exeter; Andrew Douglas Ramsay Thomson, Musselburgh; Albert Charles Butler-Smythe, London; Archibald Home Douglas, Edinburgh; Norman Purvis Walker, Edinburgh. *Members*—Norman Purvis Walker, Edinburgh; Robert Thin, Edinburgh; Robert Abernethy, Edinburgh.

FORTHCOMING DICTIONARY OF PSYCHOLOGICAL MEDICINE.—Messrs Churchill have now nearly ready, in two volumes 8vo, a *Dictionary of Psychological Medicine*, edited by Dr D. Hack Tuke. This important work has been now above two years in preparation. It will give the definition of the different terms used in medical psychology, with articles on all important subjects connected therewith, arranged in the alphabetical manner. It will form a complete work on the pathology and treatment of all forms of mental disorder, the law of lunacy, and the results of the most recent methods of psycho-physical research. One of the most noteworthy things in modern medicine is the vast number of papers and treatises which every new writer feels compelled to quote. Modern research is so minute, so exact, and so far-reaching, that no man, however able and diligent, could possibly go over the whole ground himself. He must trust for many of his statements to other observers. What distinguishes this new undertaking from the ordinary treatises on insanity written by one, two, or three physicians, is that the learned editor has enlisted in his staff a number of the most distinguished specialists in Europe. There are few well-known British writers on insanity and nervous diseases whose names are not recorded in the list of contributors. There are also some well-known names of psychiatrists in France and Germany; Italy, Russia, and Scandinavia are also represented. There are 127 names on the list of contributors. The medical public may therefore be confident that they will have in the two volumes a series of treatises giving the very last results of scientific inquiry, written by men who are masters of the subjects. To arrange without confusion, and edit without overlapping this enormous mass of scientific information, is a task almost too great for one man. It could not be in better hands than those of Dr Hack Tuke, whose own writings cover so wide a field, and who enjoys the friendship of so many scientific men throughout the world.

## ROYAL COLLEGES GOLF CLUB.

THE Spring Meeting of the Club was held at Gullane on Thursday, 24th March, in splendid weather.

The match was for the Trophy of the Club, and resulted in a win to the Royal College of Surgeons by 18 holes.

| Royal College of Surgeons. | | Royal College of Physicians. | |
|---|---|---|---|
| Dr Blaikie, | 3 | Dr Haultain, | 0 |
| „ Finlay, | 1 | „ Ronaldson, | 0 |
| „ Wallace, | 0 | „ A. Thomson, | 3 |
| „ Chiene, | 1 | „ Stitt Thomson, | 0 |
| „ Duncan, | 1 | „ P. A. Young, | 0 |
| „ Naismith, | 5 | „ Ballantyne, | 0 |
| „ Cadell, | 0 | „ Carmichael, | 2 |
| „ H. A. Thomson, | 1 | „ Dunlop, | 0 |
| „ Cathcart, | 4 | „ Brewis, | 0 |
| „ Dunsmure, | 6 | „ Tuke (Jun.), | 0 |
| „ Thatcher, | 0 | „ Maclagan, | 2 |
| „ Berry, | 0 | „ Buist, | 0 |
| „ Symington, | 4 | „ Webster, | 0 |
| „ Ronaldson, | 0 | „ Tuke (Sen.), Captain, | 1 |
| | 26 | | 8 |

The Club was most hospitably entertained to lunch at Gullane House by Dr Batty Tuke, captain of the Club, and in the afternoon various foursome and other matches were played.

# OBITUARY.

## DR HENRY INGERSOLL BOWDITCH.

ALTHOUGH the number of those who made the acquaintance of this distinguished physician on his visit to this country in 1861 must now be sadly diminished, it may be permitted to us in this Journal to offer a brief tribute to his memory, from one who is perhaps the only hospital physician now in a position to do so among those who gave a hearty greeting to Dr Bowditch in the Edinburgh Royal Infirmary more than thirty years ago. The writer was thoroughly attracted at that time, not only by what appeared to him an eminently noble personality, but also by the narrative of successful results in the treatment of pleuritic effusions by the method of what was then called *Suction*,[1] although under the more pretentious name of *Aspiration* it came, many years later, to be made a *boom* in Paris without the slightest reference to the first employment of the method in America. Dr Bowditch was even then, although in the prime of life and vigour, by no means a young man, and the steady, persistent, and indeed brilliant work he had done in connexion with this subject deserved a better fate than to be lost sight of amid the struggles for *éclat* of a young French hospital physician not at all careful as to what had been done before him. Dr Bowditch made converts in Edinburgh in those days, and at least two of the hospital staff began to use thoracentesis by suction from that time onwards. One of the two is the writer of these lines, and Dr Bowditch has been known to say that Dr Budd of King's College, London, and the present writer were the first in this country to adopt the improved procedure. But Dr Bowditch, though a most eminent thoracentesist, was far more than this. He was a most admirable and cultured physician in all respects, and not only showed in diagnosis and in treatment a wide and well-ordered knowledge and a cultivated judgment, but he appreciated also, as comparatively few then did, the importance of the preventive service of humanity in its relations to the curative. The researches which he first brought before the public in 1862[2] into the connexion of moisture in subsoils, and the effect of drainage, or the want of it, on the local distribution of phthisis in Massachusetts, became stimulus to further fruitful researches, which in England were undertaken at the instance of the medical officer of the Privy Council, by Dr George Buchanan of London, now the chief of the medical service under the Local Government Board.[1] Had Dr Bowditch done nothing else but these two things, his merit would still have been great; but in fact his was a most busy and valuable life, from many different points of view. He was greatly trusted as a physician in Boston, and was a personal friend of all of the many celebrities of the New England city; he was a successful teacher and hospital physician, and for some time Medical Officer of Health to the State Board of Massachusetts; he was, moreover, a cultured and most appreciative member of society in the most literary and scientific atmosphere on the American continent; and, lastly, he was an enthusiast for freedom and justice, and as such, an abolitionist as regards slavery, at a time when to be an abolitionist out and out required courage and convictions of a very high order. Add to this, that he was one of those men whose character is transparent, and who could not if he would have done and said anything but what was the outcome of an honest and fearless nature; and it will be easily understood that Dr Bowditch, in his long life of over 80 years, must have left one of those memories of which Boston and America are justly proud. The author of these lines experienced only one cause of deep regret in a recent visit to the United States: that it was not permitted to him again to grasp the hand of one with whom an unbroken friendship, maintained mostly by correspondence, had deepened into love and reverence as the years advanced. The attachment and the expectation were equal on each side, but the frail tenement of clay, and the failing mental powers of the veteran seemed to his nearest and dearest friends to be unequal to a satisfactory interview; and a letter, most pathetic alike in its simplicity and its kindliness, announced to the visitor the anxious though forbidden desire, and the hope that "somewhere and somehow" it might be possible to resume an intercourse which was likely to be broken off only too soon on this side the grave. Dr Bowditch died, full of years and honours, at Boston, on the 14th of January last, in the 84th year of his age. His English wife had predeceased him. One son, Dr Vincent Y. Bowditch, is in the practice of his father's profession in Boston. The Civil War cost him another son, killed while leading a squadron of cavalry.

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[1] Dr Bowditch always attributed the invention of this method and the appropriate instrument to Dr Morill Wyman of Cambridge, Mass., who performed his first thoracentesis by suction in 1850. But neither Dr Wyman nor Dr Bowditch seem to have cared to put in a claim of priority, although, at the date of a most interesting and lucid letter to the author of this notice, bearing date May 22nd, 1862, no fewer than 160 operations had been performed upon 85 persons, and with remarkably favourable results. See *Clinical Medicine: Observations recorded at the Bedside, with Commentaries*, Edinburgh, Edmonston & Douglas, 1862, Appendix, p. 717. Dieulafoy's first publication on the method of aspiration appears to have been in 1870.

[2] In an address delivered at the Annual Meeting of the Massachusetts Medical Society, founded on the written statements of physicians in 183 townships, republished in 1868 under the title, *Consumption in New England and elsewhere; or, Soil Moisture one of the chief causes.*

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[1] In this instance it is satisfactory to be able to state that Dr Bowditch's priority and merits received full acknowledgment. See the *Tenth Report* (1867) *of the Medical Officer of the Privy Council* (Mr, now Sir John, Simon), pp. 16, 17; Dr Buchanan's report being in the Appendix to the same volume, published in 1868.

A brother's son, Dr Henry Bowditch, is well known as the Professor of Physiology in the Harvard Medical School.

W. T. GAIRDNER.

The following abstract is taken from a memoir in the *Boston Medical and Surgical Journal*, January 21st, 1892.

"Dr Bowditch inherited from his father, Nathaniel Bowditch, the eminent mathematician, and his mother, Mary Ingersoll, those qualities which made him, in later years, a leader among men. In college, he was warm-hearted, straight-forward, impulsive, pugnacious, ardent—although not an ardent scholar—sensitive and popular, always to be depended on. After his literary and medical studies at Harvard University, he spent two years in Europe, studying for the most part with Andral, Chomel, and especially Louis, whom he fondly called his master. He came back to Boston full of enthusiasm for Louis's methods, and in 1836–38 published some of his memoirs in English. In 1835 he was led, by personally witnessing the famous 'Garrison mob,' to 'devote his whole heart to the abolition of slavery.' This he did in spite of all opposition and reproach, even from his father's old friends, and never ceased acting, and sometimes very actively interfering, on behalf of the slave, until the emancipation proclamation ended the long strife during the civil war. His professional reputation may possibly for a time have suffered, but it was not long before the same qualities which had guided him in public matters conquered success in practice. At all events he had laid the foundation of a kind and quality of reputation, of which the negative aspect may be condensed into his own words of advice to a younger man—'Never do anything which will make you think afterwards that you have been a sneak.' He early became a hospital physician, and in 1859 was appointed Professor of Clinical Medicine in the Harvard Medical School. With like zeal and with like simplicity of purpose and self-abnegation he accepted and held for ten years, 1869–1879, the position of President of the first State Board of Health appointed in Massachusetts, which appears also to have led the way in the United States. He was President of the American Medical Association in 1876, and attended its meetings regularly so long as his health permitted."

Among Dr Bowditch's various publications, carefully enumerated in the journal referred to, we find a whole series of papers on Paracentesis Thoracis, extending from 1851 to 1882; six on Consumption (one on the question of contagion) in reference to its prevention, 1862 to 1889; one on Yellow Fever, advocating a national sanitary board, 1888; several others on subjects connected with preventive medicine; three on Intemperance, etc., etc. One, on the Medical Education of Women, in reference to "the present hostile position of Harvard University and of the Massachusetts Medical Society," published in 1881, might perhaps be worthy of more attention than it has received on this (the European) side of the Atlantic.

"Dr Bowditch's home life was ideal. 'I think of his home as more filled with love than any other home I ever knew,' writes one of his friends. In one respect Dr Bowditch possessed a remarkably judicial mind, in that he clearly recognised his own defects. Indeed, he was not only always modest and free from assumption, but he was his own severest critic even when others saw only cause for praise. When he erred in judgment, he did so from spontaneous self-forgetfulness born of a righteous impulse. In the days of chivalry he would have been the knight without fear and without reproach."

## JOHN W. TAYLOR, M.D. St And's., M.R.C.S. Eng., L.S.A.

We regret to announce the sudden death, on February 15th, of Dr John W. Taylor of Scarborough, who was well known to the profession in Edinburgh, having been for the last two years one of the additional Examiners for degrees in Medicine and Science in the University.

Dr Taylor was born at Hull in 1837, and was educated at the University of Edinburgh, graduating at St Andrew's as M.D. in 1862. Subsequent to this he acted for a time as Assistant to Dr Heron Watson, and after holding Assistantships at Cardiff, Farnham, and Malton, he settled down to practice at Scarborough in 1865. He was appointed the first Medical Officer of Health for that borough in 1872, and in 1876 he obtained the degree of Bachelor of Science in Public Health at our University. In the following year he graduated as Doctor of Science in the same department, being one of the first to proceed to that degree. In 1890 he was, on the lamented death of Dr Page, appointed an Examiner in the University in Medical Jurisprudence and Public Health, a post which he only resigned on account of ill health at the end of last year. When the County Council for the North Riding of Yorkshire was formed, Dr Taylor became its first Medical Officer of Health. He was an ardent volunteer, and held the rank of Surgeon-Lieutenant-Colonel in that force. The formation of bearer companies in connexion with the Volunteer Service in the north of England was largely due to his efforts. He was a Freemason, and a Justice of the Peace for the North Riding.

Dr Taylor was a man of much energy and force of character, combined with great kindness of heart, and we feel sure that his loss will be greatly felt by his many Edinburgh friends.

## GEORGE SHEARER, M.D.

Dr Shearer died at the age of 54, on the 14th March 1892, in Liverpool, of pneumonia, brought on by attending the funeral of a friend. He was a native of Thurso, and studied at Edinburgh, where he took his M.D. in 1859, after a very brilliant career as a student. He then became Resident Physician in the Royal Infirmary under Dr Gairdner, of whom he was a favourite pupil, and afterwards was in succession Medical Officer to the Workhouse Infirmary, Liverpool, and to one of the dispensaries there. In that way he gained a large and varied experience of disease. After having settled in Liverpool for some time he threw up a growing practice, and in accordance with a cherished theory he went to China as a Medical Missionary, returning after a few years in bad health to Liverpool. He again settled in practice there, gradually coming to be a very busy man. He lectured at first on Animal Physiology and Biology in the School of Science, and then on Botany in the Liverpool School of Medicine. He was Assistant Physician to the Liverpool Fever Hospital, and held other medical appointments. Dr Shearer was distinctly original in his cast of mind. He was a strongly conscientious idealist who was apt to act swiftly on his keenly felt convictions. Few men in our profession have given up good prospects to go out and convert the Chinese to Christianity. He threw himself into social and sanitary work in Liverpool; he was a keen religionist without bigotry; he wrote able and permanently valuable papers on Leprosy as the result of his Chinese experience, and he contributed a standard essay on "Curing the Opium Habit." He was a thinker, and had original ideas about curing fevers and diarrhœas, and many other medical problems. He was a capital talker, and a lover of fun and of a good story, while he revelled in literature and poetry. He always threw himself enthusiastically into everything he took up, whether it was cremation, which he strenuously advocated in the Liverpool Press, or new systems of drainage in that city. He leaves a widow, three sons, and two daughters. How the ranks of the pupils of Goodsir, Bennett, Christison, and Syme are thinning!

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## ROSS FRANCIS ROBERTSON, M.A., M.B., C.M.

By the early death of this fine young man a career of great promise has been cut short, and many friends, both in his own country and in Edinburgh, will feel a distinct sense of loss. After a distinguished University career, in which he took his M.A. with honours, he received the degrees of M.B., C.M. in 1887, also with honours. He then obtained a Resident appointment in the Royal Infirmary, and afterwards the Resident Surgency in the Royal Hospital for Sick Children. He was an excellent House Surgeon—painstaking, diligent, kind, and courteous. He then acted as assistant to Dr Dow of Dunfermline, in whose extensive practice he did much work and made many friends. Commencing in practice for himself at Lochgelly, his health gave way, and he took a voyage to China; on returning from which, much improved in health, he, on February 2nd, went to Nairn to carry on work for Dr Mann in his temporary absence. He was doing excellent work there when he was seized with severe illness, and died on March 3rd. He was the only son of the Rev. Adam Robertson of the Free Church, Forres, and at the time of his death was little over 28 years old. He was a man with a strongly marked individuality of character, much self-reliance and decision, with a vein of quaint, old-fashioned humour in his composition, which, added to a much better knowledge of the classics and of general literature than is usual, made his conversation very racy and attractive. Much sympathy is felt for his bereaved father and sisters.

His illness, we believe, was due to some obscure form of blood-poisoning, and he was most faithfully attended by Dr Sclanders of Nairn, in consultation with Dr Butler of Forres and his old friend and master, Dr Dow of Dunfermline.

## MR BENJAMIN TYDD HEUSTON.

We have sadly to record the death of Mr Benjamin Tydd Heuston, L.R.C.S.E. and L.R.C.P.E., of Derby, Western Australia.

He was a native of Tipperary, and possessed many of the finer and attractive characteristics of an Irish gentleman. From 1867–71 he was a well-known and favourite College of Surgeons man, enthusiastic and impetuous in work as well as fun. After gaining some experience in general practice in this country, he joined the Colonial Medical Service, and for six years was stationed in the Falkland Islands. After a short furlough he was transferred to Western Australia, where his energy and abilities had wider scope. From Bussleton he was soon removed to Pinjarah, where he received the additional appointment of Resident Magistrate. His active habits and sound judgment attracted the attention of the Premier, who urged upon him to take the higher appointment at Derby. He had held this post for only fifteen months, when a useful and prosperous career was suddenly cut short by apoplexy. Much sympathy has been manifested for his widow and young family, and it is to be hoped that the Government will grant them some substantial proof of the esteem they held for a valuable public servant.

# Part First.

## ORIGINAL COMMUNICATIONS.

## I.—THE DISORDERS OF SPEECH.

By John Wyllie, M.D., F.R.C.P.E., Lecturer on Medicine in the Edinburgh School; one of the Ordinary Physicians to the Royal Infirmary, Edinburgh.

(*Continued from page* 907.)

### Part II.—The Development of Speech; and the Developmental Derangements—*Continued.*

### 5. *Classification of Languages. Origin of Written Language. The Invention of Printing. Printing for the Blind.*

### *Classification of Languages.*

"As all languages, so far as we can judge at present, can be reduced in the end to roots predicative and demonstrative, it is clear that, according to the manner in which roots are put together, we may expect to find three kinds of languages, or three stages in the gradual formation of speech:—(1.) Roots may be used as words, each root preserving its full independence. (2.) Two roots may be joined together to form words, and in these compounds one root may lose its independence. (3.) Two roots may be joined together to form words, and in these compounds both roots may lose their independence.

"What applies to two roots applies to three or four or more."[1]

(1.) *Radical Stage.*—Chinese is the interesting example of a language in which each root is a monosyllabic word, preserving its full independence, and having its own substantial meaning. The expression "With a stick" would in Latin be expressed by the single word *baculo*, but in Chinese by the two words **ỳ ćáng**: **ỳ** having the meaning "employ"; so that the expression means literally "employ stick." The expression "at home"—in Latin *domi*—is, in Chinese, **ủŏ-li**: **ủŏ** meaning "house," and **li** originally "inside." There is no trace of grammar in ancient Chinese: the genitive case, for instance, is represented simply by placing the word that is in the genitive first in order,—"a man of the kingdom" being given as **koue** kingdom, **jin** man (the kingdom's man). The parts of speech are determined by the position of the words in the sentence:—thus **ngò tà ni** means "I beat thee"; but

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[1] Max Müller, vol. i. p. 330.

**ni tà ngò** would mean "thou beatest me." The adjective has the force of an adjective because placed before a noun. The same word placed before a verb would have the force of an adverb. "In Chinese," says Prof. Müller, "no analysis of any kind is required for the discovery of its component parts. It is a language in which no coalescence of roots has taken place. Every word is a root, and every root is a word. It is, in fact, the most primitive stage in which we can suppose human language to have existed. It is language *comme il faut;* it is what we should naturally have expected all languages to be."

(2.) *The Agglutinative Stage.*—In the second great group of languages, the Turanian, we have the group to which, according to Professor Müller, by far the largest number of languages belong. It, in fact, comprises all the languages spoken in Asia and Europe, except those that belong to the Aryan and Semitic families. It is the type particularly characteristic of the races which have been at one time, or are even at the present day, of nomadic habits. In it, two roots may be joined together; and in these compounds one root may lose its independence. Its parts of speech have been considerably elaborated; the nouns having declensions and cases, and the verbs conjugations and tenses. The verbs are said to be particularly elaborate. Turkish is one of the best examples of the group. In Turkish—to take one or two examples,—the general idea of **loving** in the abstract is expressed by the root **sev.** Whatever additions be made to this root by agglutination of other syllables, it always remains itself unchanged, and is never modified, as the English **fall** is, in **fell**; or **take** is, in **took**. It becomes the participle **loving**, or the noun **lover**, by the addition of **er**,—**sev + er**;—and in this form it is used as the verb, **sever-im** being I love, **sever-sen** thou lovest, and so on. **Sev-mek** is to love; **sev-ish-mek** is to love one another; **sev-in-mek** is to love oneself, or rather, to rejoice and be happy.

In illustrating the nature of this agglutinative group of languages, Dr Romanes uses the English word **un-cost-li-ness**, in which each syllable represents a root,—although in some of them, as in the syllable **li** (like), the root has suffered serious deterioration. Strung together into one word, the syllables have yet distinct meanings which can still be recognised, though in some cases with difficulty. He says, "If all our words had been formed on the type of this example 'uncostliness,' English would have been an agglutinative language." Prof. Max Müller says, "The agglutinative languages preserve the consciousness of their roots, and therefore do not allow them to be affected by phonetic corruption; and though they have lost the consciousness of the original meaning of their terminations, they feel distinctly the difference between the significative root and the modifying elements."

(3.) *The Inflectional Stage.*—The third great group of languages, that in which two or more roots, joined together to form words, may, in these compounds, all lose their independence, is that of the Inflectional languages, of which there are two families, viz., the Semitic and the Aryan. It is curious that the higher civilisation of the world has been, to a most remarkable extent, owing to the races of mankind who have spoken or continue to speak these languages. Hebrew, Chaldee, and Arabic, may be instanced as examples of the Semitic family; Sanskrit, Persian, Latin, Greek, the Teutonic languages, the Celtic, and the Slavic, as representatives of the Aryan. In this great Inflectional group, the roots have been welded together into a closer relationship than in the Agglutinative languages. To use the simile of Professor Müller, they represent a mosaic in which the elements are so closely applied to each other that the joinings cannot be discovered, whereas in the Agglutinative languages each separate element is still distinctly definable among the rest. In the Inflectional languages, "the various elements which enter into the composition of words may become so welded together, and suffer so much from phonetic corruption, that none but the educated would be aware of an original distinction between root and termination, and none but the comparative grammarian able to discover the seams that separate the component parts."[1]

Thus the English word **lord** would be nothing but an empty title "unless its original form and meaning had been discovered in the Anglo-Saxon **hlâf-ord**, meaning the source of bread, from **hlâf**, a loaf, and **ord**, place." The word **lady** is similarly derived from **hlâf**, loaf, and **dige**, from **digan**, to care for or help. "Hence **lady** means one who helps or serves bread to the family." In like manner it would be impossible to know how the terminal letter in the word **loved** puts the verb in the past tense, were we not assured by philologists that the expression was originally **I love did** (I did love), and that the **did** has been attenuated to the single letter **d**.

When the union of roots has thus become more intimate, the structure "can be manipulated in a variety of ways without involving its disintegration;" so that the languages of this type admit of more artistic employment than those of any other.

Romanes gives the following formula (from Hovelacque) regarding these three great groups of languages. R representing a root, a sentence in a language of the radical or isolating type (Chinese) might be represented thus, — R + R + R, each root maintaining its complete independence. In the agglutinative type, the chief roots still maintain their independence, but the subordinate roots undergo some modification, though still remaining distinctly recognisable as roots. The formula given for these is Rr, Rrr, rR, or rRr. In the inflectional type, either the chief roots or the subordinates may undergo inflectional change so as to become irrecognisable as roots, except to the learned, who can trace out the history and affinities of the word; and this inflectional change is, in the formula, denoted by attaching the letter x to the root changed. As either the chief root or the subordinates may undergo such inflection, the formula is, $Rr^x$, $R^xr$, $Rrr^x$.

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[1] Max Müller, *op. cit.*, vol. ii. p. 370.

Professor Müller (p. 372) is of opinion that every language can be classified as a member of one or other of these three great groups,—the Radical, the Agglutinative, and the Inflectional. He thinks that the second of these was developed from the first, and the third from the second. At page 378, he says—"As far as the formal part of the language is concerned, we cannot resist the conclusion that what is now *inflectional* was formerly *agglutinative*, and what is now *agglutinative* was at first *radical*."

*Analogy between the Species of Languages and the Species of Plants and Animals.*—Darwin has made some very interesting remarks about the obvious parallelism that exists between the development of different languages and the development of different species of plants and animals. He says—"The formation of different languages and of different species, and the proofs that both have been developed through a gradual process, are curiously parallel. But we can trace the formation of many words further back than that of species, for we can perceive how they actually arose from the imitation of various sounds. We find in distinct languages, striking homologies due to community of descent, and analogies due to a similar process of formation. The manner in which certain letters or sounds change when others change, is very like correlated growth. We have in both cases the reduplication of parts, the effects of long-continued use, and so forth. The frequent presence of rudiments both in language and in species is still more remarkable. The letter **m** in the word **am** means **I**, so that, in the expression **I am**, a superfluous and useless rudiment has been retained. In the spelling, also, of words, letters often remain as the rudiments of ancient forms of pronunciation. Languages, like organic beings, can be classed in groups under groups; and they can be classed, either naturally, according to descent, or artificially by other characters. Dominant languages and dialects spread widely and lead to the gradual extinction of other tongues. A language like a species, once extinct, never, as Sir C. Lyell remarks, 'reappears.' The same language never has two birthplaces. Distinct languages can be crossed or blended together. We see variability in every tongue, and new words are continually cropping up; but, as there is a limit to the powers of the memory, single words, like whole languages, gradually become extinct. As Max Müller has well remarked:—'A struggle for life is constantly going on amongst the words and grammatical forms in each language. The better, the shorter, the easier forms are constantly gaining the upper hand, and they owe their success to their own inherent virtue.' To these most important causes of the survival of certain words, mere novelty and fashion may be added; for there is in the mind of man a strong love for slight changes in all things. The survival or preservation of certain favoured words in the struggle for existence is natural selection."[1]

*Phonetic Decay and Dialectic Regeneration.*—By the processes of Phonetic Decay and Dialective Regeneration, curious changes have been brought about in the words of every language. Abundant illustrations of such changes may be found, for example, in any language belonging to the Inflectional group. If we take French, which is one of the direct descendants of Latin, we find, as Professor Müller points out, that many of the Latin terminations are substantially retained in the spelling of words, though, having become mute, they have disappeared from pronunciation. "Thus, **j'aime** is **ego amo**; **tu aimes, tu amas**; **il aime, ille amat.** There was originally a final **t** in the French **il aime,** and it comes out again in such phrases as **aime-t-il?**" In the future of the same verb, the process of Dialectic Regeneration is exhibited. The old Latin is **amabo,** but the French is **j'aimerai.** "How did the termination **rai** bud forth like a blossom in Spring? . . . The Latin future was destroyed by means of phonetic corruption. When the final letters lost their distinct pronunciation, it became impossible to keep the imperfect **amabam** separate from the future **amabo.** The future was then replaced by dialectical regeneration, for the use of **habeo** with an infinitive is found in Latin, in such expressions as **habeo dicere,** I have to say, which would imperceptibly glide into, I shall say." The future **j'aimerai** is, literally translated, I have to love. In English, the effects of phonetic decay are as strikingly exhibited as in French, and dialectic regeneration has in English been brought about to an extent perhaps without parallel in any other language. In the ancient languages of Teutonic type from which English has descended, it was at one time the practice to place the pronoun after the verb, the word **am**, for example, being, as already indicated, complete in itself, with the meaning of "I am," the terminal **m** having originally the signification of "I." So, in like manner, **art** was originally complete in itself, the final **t** representing the second personal pronoun. In Latin and Greek, all verbs exhibit these personal terminations, but in English the verb **to be** is one of the few that still retains some of them. Long ago, these terminations became so decayed as no longer distinctly to indicate personal pronouns, and, by process of dialectic regeneration, new personal pronouns were placed before the verb. In these circumstances, the genius of the English language had, in most cases, the good sense to drop the useless terminations altogether, retaining them neither in the spelling nor in the pronunciation. The grammar of English has thus been reduced to the greatest simplicity, so much so, indeed, that some authorities will have it that English, like Chinese, has no grammar at all;—for "What is grammar," says Max Müller, "but conjugation and declension?" and conjugation and declension have in English been reduced to a simplicity that contrasts remarkably with their condition in the other languages of the same group.

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[1] *Descent of Man*, p. 90.

Among a people speaking the same language, the processes of phonetic decay and dialectical regeneration always bring about the development of different dialects in different districts of the country. The accent differs in different districts; certain words are pronounced differently; words and expressions are retained in some districts, though they have become obsolete in others; and even the pronunciation of certain letters may be such as to be characteristic of the district,—as is the use of the burring R in Northumberland, and the substitution of Z for S in Somerset. The different dialects struggle with each other for predominance, until at last the contest is decided by one dialect becoming the literary dialect of the country, and the spoken dialect of all educated people in it. A standard of good taste is thus established, and any marked departure from it, if the articulative powers are normal, comes to be branded as either an affectation or a vulgarism.

It would be easy to give abundant examples of Affectations, but it may suffice to remind the reader of the affectations practised in the substitution of **th** for **s** (lisping) and in the substitution of **w** for **r**;—which, however, are affectations only when they are practised voluntarily. A new affectation, which seems to be gaining ground at present, is the substitution of **n** for the terminal **ng** in words ending with **ing**.

The most striking Vulgarism in English is the omission of **h** where it ought to be pronounced, and the insertion of it where it ought not. Omitted in one place, it takes its revenge by cropping up where it has no right to be. It is much the same with the letter **r**. Even in polite English, the **r** sound has, when occurring after a vowel, been so softened as to be effaced. It takes its revenge by appearing where it has no right to be. In southern English we hear it in such expressions as "Isabella**r** of Spain." This obtrusive **r**, Dr Hullah regards as unpardonable; but it is so common even among highly educated people that it is beginning to acquire a respectable position in society. The unpardonable errors are those connected with the letter H. These are the Shibboleths of modern English society. The reader will remember the passage about this word Shibboleth, the **sh** sound of which was in one of the dialects of the Hebrews given as **s**:—"And it was so, that when those Ephraimites which were escaped said, Let me go over; that the men of Gilead said unto him, Art thou an Ephraimite? If he said, Nay; then said they unto him, Say now Shibboleth: and he said Sibboleth: for he could not frame to pronounce it right. Then they took him, and slew him."

*The English Language.*—When a language of the Inflectional type has dropped its useless terminations, and thereby greatly simplified its structure and grammar, it is said, by some authorities, to have passed into the Analytical stage. As already indicated, the English language has more than any other language passed into this condition. It is, in fact, the chief representative of what has been called the analytical modification of the Inflectional type. It is well known that Grimm, one of the illustrious founders of Modern Philology, has paid a remarkable compliment to the English language. He says,—"The English language possesses a power which probably never stood at the command of any other nation. This singularly happy development and condition has been the result of an intimate union of two of the noblest languages, the Teutonic and the Romance; the former supplying the material groundwork, the latter, the spiritual conceptions. In truth, the English language, which, by no mere accident, has produced and upborne the greatest and most predominant poet of modern times (I can, of course, only mean Shakespeare), may, with all right, be called a world-language, and, like the English people, appears destined hereafter to prevail with a sway more extensive than its present one over all portions of the globe. For in wealth, good sense, and closeness of structure, no other of the languages at this day spoken deserves to be compared with it,—not even our own German, which is torn even as we are torn, and must rid itself of its defects before it can enter into the lists as a competitor with English."[1]

The total number of words in the English language has been variously estimated, one dictionary of repute giving 43,566, another 58,000, and a third 70,000. It is said that a perfect dictionary would include as many as 100,000. Professor Müller says,—"The Hebrew Testament says all that it has to say with 5642 words, Milton's works are built up with 8000, and Shakespeare, who probably displayed a greater variety of expression than any writer in any language, produced all his plays with about 15,000 words."[2] The same authority states that a well-educated person in England seldom uses more than about 3000 or 4000 in actual conversation; and he quotes an observation made by an English clergyman, Mr D'Orsey, in his *Study of the English Language*, that some of the labourers in his parish had not 300 words in their vocabulary. This observation, Mr Farrar informs us,[3] has been widely disputed; but he seems himself, from his own observations, inclined to accept it as substantially correct.

*Alphabetical Letter-sounds used in Different Languages.*[4]—No language uses more than a comparatively small number of the sounds which the organs of articulation are capable of producing. Each language makes its own selection of these sounds. Even among European nations employing the same alphabet, there are differences in the sounds given to some of the letters. Thus the English **th** sound is peculiar to English, and is with difficulty acquired by foreigners. Terminal **n**'s have only a half-nasal pronunciation in French. In German, **s** is pronounced like the English **z**, and **z** like the English **ts**. Still more striking peculiarities are exhibited among non-European peoples. The Chinese, for example, have no R in their language, and say "Yamelika" for "America;" the Japanese have no L, and say "Horrand" for "Holland;" and the Mohawks have no labials or labio-dentals, and therefore have in their language no p, b, f, v, w, or m. The Arabs have their true gutturals, pronounced deep in the throat, about the upper part of the larynx. The Hottentots make much use of clicking noises, of which some are made by the tongue, and others by the lips.

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[1] Quoted by Lennox Browne & Behnke, *Voice, Song, and Speech*, p. 37.

[2] Max Müller, *op. cit.*, p. 309.

[3] *Chapters on Language*, p. 52.

[4] This subject is discussed at considerable length by Kussmaul, who gives many other examples.

*Song.*—Among those who hold the view that Speech developed itself gradually out of a previously existing language of vocal tone, facial expression, and gesture, an interesting difference of opinion has arisen as to the period at which Song was probably developed. Herbert Spencer, in his *Essays*, holds that song was late in coming, and that it probably developed itself out of the cadences of impassioned speech. Darwin, on the other hand, has advocated the opposite view, and holds that song in all probability preceded speech. He says,[1]—"As we have every reason to suppose that articulate speech is one of the latest, as it certainly is the highest, of the arts acquired by man, and as the instinctive power of producing musical notes and rhythms is developed low down in the animal series, it would be altogether opposed to the principle of evolution, if we were to admit that man's musical capacity has been developed from the tones used in impassioned speech. We must suppose that the rhythms and cadences of oratory are derived from previously developed musical powers. We can thus understand how it is that music, dancing, song, and poetry, are such very ancient arts. We may go even further than this, and, as remarked in a former chapter, believe that musical sounds afforded one of the bases for the development of language."

### *Origin of Written Language.*

The language of gesture employed by deaf-mutes, savages, and others, has been described as substantially a picture-language, by means of which objects are, as it were, pictured in the air. As already indicated, it is held by many that this language of pictures in the air must have played an important part in preparing the way for the language of spoken words. This, however, cannot be proved to be a fact: it is only a proposition, with much to be said in its favour. It is very different in regard to the origin of written language. Here the evidence is conclusive. All authorities are agreed that there can be no possible doubt about the fact that picture-writing preceded word-writing, and that out of picture-writing, word-writing was slowly evolved. From the writings of Mr E. B. Tylor, I shall endeavour to extract a few of the most illustrative facts bearing upon the question.

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[1] *Descent of Man*, p. 570.

The various tribes of North American Indians have made, on rocks and tombstones and blazed pine-trees, many excellent examples of the most primitive type of picture-writing. They practise such picture-writing to the present day. Everything indicated is rudely but clearly drawn. In the record of a hunting expedition, for example, two comparatively large figures, those of a bear and a cat-fish, indicate the clan names or totems of the chiefs who took part in it; and a number of smaller figures, those of six cat-fish and one bear, indicate the spoil of the expedition. A warlike expedition, in like manner, is rendered by the figure of the chief on horseback; the totem of his principal ally, a king-fisher; six canoes, with upright lines in them to indicate the number of men in each; a tortoise, apparently to indicate that the expedition got to land; and three discs under a vault, to indicate that there were three suns under heaven, that is, that the voyage took three days.

Among the semi-civilized Aztecs of Mexico, the Indian picture-writing made some steps in advance. Pictures, better drawn than those of the ruder Indians, continued to be used in writing, as the representatives of the things pictured, but already, long before the conquest of the country by the Spaniards, a new element had been added to the writing. It was the employment of a large number of pictures to represent, not the things pictured, but syllabic sounds identical with the spoken *name* of the thing pictured, or at least with the first syllable of that name. Thus a *phonetic system of signs for syllables* added itself to the older pictorial representations of things. "The device," says Mr Tylor, "is perfectly familiar to us in what is called a 'rebus,' as where Prior Burton's name is sculptured in St Saviour's Church as a cask with a thistle on it, 'burr-tun.'" It is known that by this compound picture-writing the Aztecs made known to their king at the capital the first arrival of the Spaniards on their coast.

Chinese writing, though at the present day its characters have little in them that is suggestive of pictures, is really the direct descendant of a picture-writing of the ordinary type. As the ancient picture characters have been preserved, the whole history of this development can be traced. In the ancient characters, the sun was a disc, the moon a crescent; and a fish, a dog, a mountain, and a tree were represented by conventionalized sketches of these objects. Gradually these pictures underwent change, by a process equivalent to the phonetic decay of spoken words; so that eventually they became, to all appearance, merely conventional signs for the objects indicated. At the same time, Combinations of the signs were constantly invented. By these combinations, Ideas or

Concepts were represented; so that the title Ideographic has been given to this type of writing. The adjective *bright* is thus represented by the combined signs of the sun and the moon, and the verb *to divide* by the combination of the sign for a knife and that for the number eight. As in the case of the Aztec writing, one step was made towards the formation of a phonetic alphabet; and it was made in the same way. Many of the signs became phonetic syllable signs, like Prior Burton's "rebus." But here a difficulty, inherent in the "poverty-stricken" Chinese language, had to be encountered. In Chinese, the same spoken word has in very many cases a great variety of meanings, and in speech the specific meaning is generally made intelligible merely by accent or intonation. But accent and intonation could not be faithfully represented in the characters, and therefore another device had to be adopted. The word **chow** in Chinese means many things. Among others it means "ship." Therefore a ship stands for the sound **chow.** But the same sound means a "ripple." To make this clear, when ripple is indicated, the sign for **water** is added to that for **ship.** In like manner, as the sound **chow** may mean **loquacity,** the sign for **speech** is added to that for **ship** when **loquacity** has to be indicated. Thus "the great mass of characters at present in use are double, consisting of two signs, one for sound and the other for sense."[1]

"Egyptian hieroglyphic inscriptions consist of figures of objects, animate and inanimate, men and animals, and parts of them, plants, and heavenly bodies, and an immense number of different weapons, tools, and articles of the most miscellaneous character. These figures are arranged in upright columns or horizontal bands, and are to be used in succession, but they are not all intended to act upon the mind in the same way. When an ordinary inscription is taken to pieces, it is found that the figures composing it fall into two great classes. Part of them are to be read and understood as pictures, a drawing of a horse for 'horse,' a branch for 'wood,' etc., upon the same principle as in any savage picture-writing. The other part of the figures are phonetic. Thus, the figure of a strap, the name of which is **m — s** becomes a phonetic sign to write the sound **m — s** with. (The — stands for some vowel, which is represented by **ou** in the Coptic form of the word, **mous.**)"[2] Here then we have represented the "rebus" or syllabic stage of phonetic writing, as it is met with in Aztec and Chinese writing. But the hieroglyphics went further than this. Along with the two sets of characters above indicated, there is a third set, which, by most authorities, is held to represent simple consonant sounds without attached vowels. Thus it appears that the figure of a **mouth** is often used with the simple signification of the letter **r**—the Egyptian word for mouth being **ro**;—and there are many other signs which apparently stand for simple consonants.

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[1] E. B. Tylor, *op. cit.*, p. 400.

[2] *Ibid.*, p. 98.

In the same inscription, all three stages in the development of written characters may thus be found to be represented: (1.) Pure picture-writing; (2.) The "rebus" stage of syllable phonetic writing; and (3.) Alphabetical phonetic writing.

In ancient Egyptian, as in Chinese, the poverty of the language displayed itself in the employment of the same spoken word in a great variety of senses. To indicate the specific meaning to be attached to the word, the same device was employed in the hieroglyphics as in the Chinese. After the phonetic symbol, came the "determinative sign," in the shape of a picture to be read as a picture. Thus, the signs for "the letters **k k** followed by the picture of a star hanging from heaven mean 'darkness' (Coptic **kaké**)."[1] Mr Tylor says that had there been none of these determinative signs in the inscriptions, the deciphering of them in modern times "could hardly have gone a step beyond the first stage, the reading of the kings' names."

The third element in the hieroglyphics is believed, by most authorities, to have furnished the first suggestion to the Phœnicians for the construction of a complete phonetic alphabet, in which each letter would represent a single consonant or a single vowel. This is the final step in the development of written speech. Obviously, it reduces the written characters to a number exceedingly small, as compared with the number required for syllabic sounds, or the still greater number required for pictorial representations. Learning to read and write becomes a comparatively easy matter when words are thus represented by signs of their component letter-sounds. If the Phœnicians were, as is generally believed, the first to construct such an alphabet, the world owes them a debt of gratitude. Whether some sage among them, taking hints from the hieroglyphics, evolved the whole alphabet as it is found in their literature, or whether it was developed gradually, by a process of gradual improvement, is now, I suppose, impossible to determine. In whatever way it was elaborated, there can be no doubt that the Phœnician alphabet was the parent of the Greek and Roman, and therefore of the alphabet which we use at the present day.

### *The Invention of Printing.*

A full and instructive article on Typography has been contributed to the last edition of the *Encyclopædia Britannica.*[2] I shall avail myself of it in making here a few brief notes as to the development of printing.

Before the invention of printing, books were of course written in manuscript, and all figures or pictures were drawn with the pen or painted with a brush. "In the thirteenth century there already existed a kind of book trade. The organisation of universities, as well as that of large ecclesiastical establishments, was at that time incomplete, especially in Italy, France, and Germany, without a staff of scribes and transcribers, illuminators, lenders, sellers, and custodians of books, and persons who prepared and sold the vellum or parchment required for books and documents."

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[1] E. B. Tylor, *op. cit.*, p. 99.

[2] By J. H. Hessells and John Southward.

It was when the production of manuscripts had thus attained to its greatest development, that the art of Block-printing or Xylography first made its appearance. This was, in fact, nothing more than wood engraving. On a single block of wood, a picture was engraved, and, along with it, were engraved the words explanatory of the subject. At a later time, upon a single block a whole page of reading was engraved. Whole books were thus printed from engraved blocks, each page from its own block. Many of these "block-books" have been preserved to the present day. This art of block-printing seems to have been practised as early as the 12th Century, and it is certain that about 1400 it was known all over Germany, Flanders, and Holland.

With such blocks of engraved words in their hands, it must have required no great exercise of the imagination, on the part of the engravers, to see that if the letters of the alphabet were engraved on a block in this fashion, and then cut apart from each other so as to form movable "types" of the individual letters, an immense saving of labour would be effected. It would no longer be necessary to engrave the letters anew for every new book. It would be possible to use the same types over and over again for the printing of a multitude of books,—their re-arrangement for each being all that would be required. The carrying of this idea into effect constituted the great and beneficent invention of printing, which, in these last centuries, has contributed so enormously to the advance of civilisation. The types were first cut in wood, but in a very few years it was found to be much more convenient to have them cast in metal. Who was it that first cut out the movable wooden types and printed from them? About this question there has been a controversy for about four hundred years. In the article alluded to, the reader will find the facts of the case very fully stated. The Dutch claim the invention for their countryman, Lourens Janszoon Coster, who worked at Haarlem. The Germans, on the other hand, hold that the inventor was Johann Gänsfleisch, commonly known as Gutenberg, who worked at Mainz. After a most elaborate examination of the evidence, the authors of the article conclude thus:—"As the case stands at present, therefore, we have no choice but to say that the invention of printing with movable metal types took place at Haarlem, about the year 1445, by Lourens Janszoon Coster." Gutenberg and the other printers, established a few years after this date at Mainz, seem to have improved the art and made it more artistic.[1]

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[1] It should be noted that the arts of Block-printing and of Printing from Movable Types were both practised in China and Japan for centuries before they arose in Europe.

By means of the primitive hand-press, very beautiful printing was done by the old printers; but the work was slowly executed. In recent times, great improvements have been effected in rapidity of execution. The use of steam-power; the valuable invention of "stereotyping" (taking a metal cast of the types after they have been set up; so that the printing surfaces can be multiplied indefinitely); and the exercise of great mechanical ingenuity in the construction of printing machines; have all contributed to make printing, in these latter days, a process which can be carried out with the most wonderful rapidity. The celebrated Walter machine, for example, employed at present by most of the leading newspapers, when working at its average speed, is capable of turning out in an hour 12,000 copies of a large newspaper, printed on both sides.

### *Printing for the Blind.*

Within recent times, several valuable inventions have been made, by modifying the letter-signs of the alphabet so as to make them available for special purposes. Among these may be mentioned the representation of the letters by the combined dots and dashes employed in the Morse system of telegraphy; also the lines and dots used for phonetic shorthand writing. It will here not be necessary to say anything about either of these valuable inventions. Nor will it be necessary to describe the signs used for musical notation; nor the symbols that have been invented, from of old, for arithmetical, algebraic, and astronomical purposes. But with regard to some of the last mentioned I may quote an interesting remark made by Mr Tylor. He says, "'⊙ before clock 4 min,' and '☽ rises at 8 h. 35 m.,' survive to show that even in the midst of the highest European civilisation, the spirit of the earliest and modest form of writing is not yet quite extinct." I should like, however, to say a few words about the Raised Letters that have been invented for the benefit of the Blind. Full information on the subject may be found in the work by Dr T. R. Armitage, Hon. Secretary to the British and Foreign Blind Association.[1]

The inventor of raised characters for the blind was M. Valentin Hauy, the founder of the *Institution des Jeunes Aveugles* in Paris. He invented raised characters in 1784; using, for the purpose, the Italic or written form of the Roman letter. This system was introduced into this country in 1834, but it was soon superseded.

Mr Gall, of Edinburgh, in 1834, printed the Gospel of St John in a modified Roman letter, using serrated lines and replacing curves by angles.

Mr Alston, of Glasgow, adopting the idea of Dr Fry, the type-founder, used ordinary Roman capitals,—a method still used in some of the English and American asylums.

The system of Lucas, introduced about 1838, is a stenographic shorthand; and the characters are altogether arbitrary, consisting mainly of lines with or without a dot at one end. It is used by the London Society for teaching the blind to read, and in several of the provincial asylums.

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[1] *The Education and Employment of the Blind.* Second edition, 1886.

The Braille system was invented in 1829, by M. Louis Braille, a blind pupil of the *Institution des Jeunes Aveugles* in Paris. It has been recommended for adoption by every European Congress of educators of the blind since 1878. "Its signs are purely arbitrary, and consist of varying combinations of six points, placed in an oblong, of which the vertical side contains three, and the horizontal two points." There are sixty-two possible combinations of these six points, "so that after the modest requirements of the English alphabet have been supplied, there remain a sufficient number of signs for punctuation, contractions, etc." For the letter A, only one of the six dots—the uppermost of the left vertical side—is raised; for B, this same dot and the one below it; for C, the upper dot of each vertical side; for D, the same two and the second of the right vertical side; and so on. These raised dots are found to be more clearly perceptible to the touch than any kind of lines. In the Braille type, not only words, but also music has been extensively printed. In the Edinburgh Asylum, the Braille type has been in use for the last twelve years, and gives great satisfaction. With the aid of simple apparatus, the pupils print letters for themselves. They also stereotype the characters upon metal plates, from which copies can be taken with a printing-press. In this way, they have themselves printed many volumes.

Among the other systems that have competed in this country for adoption, may be mentioned those of Frere, Moon, and Carter; but it will not be necessary to describe them.

As the human mind is, in the natural condition of things, primarily educated to speech through the "ear-gate," a person born blind is as to speech undoubtedly in a less unfortunate condition than is a congenital deaf-mute. The blind child learns to speak and to understand audible speech like other children. Though he cannot appreciate expressive gestures and facial expressions, he can fully appreciate expressive tones, and has the enormous advantage of being educated to speech early, and in the normal way. Still, even as regards speech, he is in a very unfortunate position. It has been said that in the case of most educated persons a full half of the new thoughts that daily reach the mind reach it through the medium of the eye, from printed and written characters. No invention can put the blind in a position to read the words of ordinary print or writing. The learned blind—and there have been many such—have employed others to read aloud for them. Still, the invention of raised characters has been of immense service to the blind, as has also been the education to various kinds of work that is given them in the Asylums for the Blind now established in every great city. By the education of the unfortunate blind, and the still more unfortunate deaf-mute, humanity has, during the last hundred years, done itself great honour.

In the foregoing notes, I have tried to indicate the chief facts in the development of speech, audible and visible. These facts, I think, are well calculated to illustrate the relationships between speech and thought. This, however, is a difficult metaphysical subject which, for the present at least, I cannot do more than glance at.[1] I shall therefore only say a few words about the relations of nouns to concepts.

The facts before us show very clearly that the human mind forms images of things, which it can recall in imagination at will. These images are memories of sense impressions. There are sight-images and sound-images ; and there are also images or memories of taste, touch, and smell. By combining these sense impressions, the mind forms concepts of objects. A concept thus represents a knowledge of the sensible properties of the object, so far as, in any given case, these have been ascertained. As all intelligent minds form such concepts in the same way, and hold them in the memory ready to be revived, no elaborate description is needed to revivify, in the mind of another person, a concept already familiar to him. A mere hint is sufficient. The deaf-mute thus suggests a familiar concept to the mind of another person by his imitative gesture or picture in the air. The early inventors of picture-writing, in like manner, suggested familiar concepts by making actual drawings of the objects, as visible to the eye. Audible speech fulfils its function largely by calling up concepts in the mind. And it does so much more efficiently than either gestures or pictures. The wonderful law of association in the human mind permits of the linking together of a certain sound and a certain concept, and this word-sound represents not merely *one* of the sensible properties of the object, such as its external form,—it is equivalent to the whole concept,—it is its symbol or equivalent. Thus, to call up in the mind of another person the concept, say, of a horse, the horse need not be described: a single word is sufficient. Something has already been said as to the speculations regarding the manner in which these word-symbols first came to be developed. It has been shown that according to one opinion the first words were voluntary imitations of natural sounds, and that according to another the "roots" of languages, which may be regarded as in some measure representative of the primitive words, ought to be regarded as "ultimate facts" in Philology, admitting of no explanation. Whatever may have been the primitive origin of words, they are, in their essential nature, symbols. They are suggestive of concepts, in virtue of the law of association; and they are so subtly suggestive that a long train of thought expounded by a speaker can be called up to the minds of his hearers in instantaneous response, while he is in the act of speaking. These word-symbols are so superior to all others in their power of calling up concepts, that, in the development of written characters, the final triumph was attained only when the *sounds* of speech were at last analysed into their component letter-elements, and a written character was given to each of these. The visible writing then for the first time accurately suggested to the mind the audible sound, in virtue of the wonderful law of association. Written words are thus the visible symbols of sound symbols. In this respect they are so efficient that, when we read the words upon a written or printed page, they almost seem, to the imagination, to sound audibly in our ears.

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[1] The subject will be found to be fully discussed both by Farrar and by Romanes, *op. cit.*

So efficiently has language linked itself to thought, that many have difficulty in conceiving of thought as capable of existing at all without at least a mental embodiment of it in language. Prof. Max Müller even goes so far as to say, "There is no thought without words, as little as there are words without thought."[1] "What a strange definition," says Darwin, "must here be given of the word thought." It seems pretty clear that if the disputants upon this question agreed to attach the same meanings to the terms employed in their arguments, they would soon come near to a general agreement. Many eminent authorities, as we have seen, hold that speech itself was *invented* by thought; and truly a man must be a master of words before his best thoughts can be expressed in language that is worthy of them. Some hold that thought can never be adequately expressed, but can only be suggested. Thus, according to Du Ponceau,[2] "Thought is vast as the air; it embraces far more than languages can express, or rather languages express nothing;—they only make our thoughts leap out in electric sparks from the speaker to the listener. A single word suggests a crowd of ideas which the spirit combines and collects with the rapidity of lightning." The truth probably lies, as usual, between the two extreme views. Words are wonderfully suggestive, but they are so closely equivalent to concepts as to be at the same time wonderfully expressive. They are naturally most expressive with those who have best learned how to use them.

(*To be continued.*)

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[1] Quoted by Darwin, *Descent of Man*, note to p. 89.

[2] Quoted by Farrar, *op. cit.*, p. 263.

# II.—EMPYEMA, BASAL LUNG DISEASE, AND BRONCHIECTATIC CAVITIES.

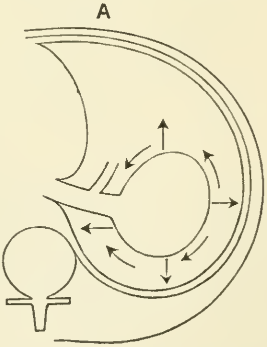
By Alex. James, M.D., Assistant Physician, Royal Infirmary, Edinburgh;
Lecturer on the Practice of Physic, School of Medicine, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh, 3rd February* 1892.)

That bronchiectatic cavities are frequently the result of too long existent pleuritic effusions every one will admit. The lung being bound down by a layer of fibrinous membrane, and the fluid being gradually absorbed, the diaphragm will be drawn up, the heart and opposite lung drawn over, and the chest wall drawn in. This drawing up, in, and over will not, however, in bad cases be sufficient to fill up the space which the absorbing fluid tends to leave, nor will in addition be the emphysematous distension of the affected lung at parts still pervious to air. Hence the bronchial tubes, the most yielding parts, will have their walls drawn out, and bronchiectasis will be produced. But what I wish to contend for in this paper is that a purulent pleuritic exudation—that is to say, an empyema—is, by its being able much more readily than a sero-fibrinous effusion to burrow through the lung tissue and open into a bronchial tube, a quite as frequent cause of basal lung disease and bronchiectatic cavities.

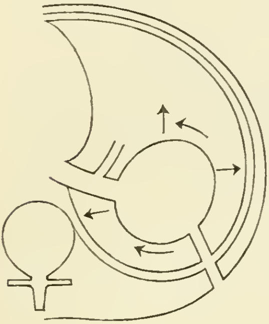
To explain this, let us consider some points as regards the physics of the lungs and chest wall.

Suppose we have a bronchiectatic basal cavity at (A), the forces which tend to keep this cavity enlarging are,—(1), acts of coughing; (2), pressure of secretion; (3), traction, as the result of cell infiltration, fibrosis, and contraction in the lung tissue around. As regards 1 and 2 nothing more need be said; it is evident that both must always act in distending the cavity. As regards (3), the traction, we have to notice that it will act partly in distending and partly in contracting the cavity. Thus, as the newly-formed fibrous tissue contracts in every direction, it will, as shown by the straight arrows (Fig. A), by drawing the cavity wall to the parietes, have an enlarging effect. On the other hand, by its contracting in the opposite direction, as shown by the curved arrows, it will at the same time act in contracting the cavity. Which of these effects of this fibrotic contraction will be the more marked? With a very large cavity—that is to say, a cavity nearly as large as the pleural cavity itself—the enlarging effect would certainly be the greater; but with most smaller cavities, having in consequence of their smaller size a considerable amount of lung tissue around



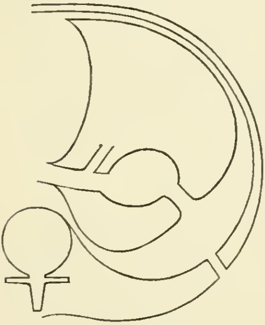
which can yield to some extent, the contracting effect will be the greater. In ordinary large cavities, however, there will be very little difference in favour of the latter; so that, as against the distending effects of the coughing and of the accumulating secretion, any such contraction of the cavity will have little chance of occurring.

B



It is quite otherwise, however, when the cavity is opened and drained through the chest wall, as at (B). Here the secretion cannot accumulate, and so can have no distending effect, whilst the cough, owing to the drainage opening through the chest wall, may as a distending force practically be neglected. The contracting effects of the fibrosis will now have a chance of manifesting themselves, the walls of the opening through the lung tissue and the adhesions between the pleura and ribs will both be drawn upon, so that with a diminution in the size of the pulmonary cavity more and more space will be yielded by the pleural cavity, as shown in Fig. C. This was precisely what happened in the case of a man, G. W., who was admitted to Dr Muirhead's wards in the Royal Infirmary on the 11th August 1887. He had the symptoms and physical signs of a very large cavity in the lower part of his right lung, and on the night of his admission he brought up about a pint of very fœtid mucopurulent fluid.

C



Three days after admission the cavity was opened, and drained in the usual way. The opening in the chest wall was made a little outside of the line of the angle of the right scapula, and the huge cavity was easily struck some two inches within the pleura, the pleura and lung being firmly adherent all round. The patient was immensely benefited by the operation, but the discharge never entirely ceased, so that drainage had to be continued. Becoming more and more exhausted, he died in April 1888. On post-mortem examination the following were the appearances met with:—

"Right lung weighed 1 lb. 7 oz. This lung was adherent a little way from its anterior border to the chest wall by a ridge of dense, hard, thick adhesions, which cut almost like cartilage. On cutting through this ridge, and thus separating the lung from the thoracic wall, a large cavity was opened into which was evidently the pleural cavity. The lung itself was collapsed toward the spine, and was covered by a dense tough membrane, the thickened visceral pleura. The lung retained its connexion with the parietes across the cavity by means of two thick pillar-like structures about the thickness of a florin; these were evidently limited areas of pleural adhesions which had been formed before the lung collapsed as a whole. The central part of their pillar-like structures contained pigmented pulmonary tissue, in which the alveoli were clearly visible to the naked eye. These two structures were situated on the upper part of the collapsed lung.

"On the surface of the lung, on its posterior aspect and near its inferior border, there were two openings the size of a large goose-quill; these were at the bottom of funnel-shaped depressions, and were quite evidently of long standing. One of these opened into a small cavity the size of a hazel nut, which had fibrous walls. This cavity was in connexion with a somewhat dilated bronchus. The second one was in connexion with an anfractuous cavity, which ran for about three inches upwards in the substance of the lung. This cavity had its walls formed of pigmented alveolar tissue, and presented no fibroid thickening, as old cavities do; the largest part of this cavity would hardly hold a pigeon's egg—the greatest part of it was not one-third of that size. In the apex the tissue of the lung was tunnelled with cavities which communicated with one another, and presented the further interesting fact that they were in connexion, by long passages, with the pulmonary tissue in the pillar-like structures already referred to. Sections of this lung presented many different stages of destructive action. The more unaffected portions were deeply pigmented and leathery. The pleura was very much thickened, the bronchi were of deep purple colour, and tubercles were visible in their mucous surfaces.

"The left lung weighed 3 lbs. 1 oz. It was fixed by old but not very dense adhesions. The lung looked large and bulky; it had many hard nodules and masses of various sizes in its substance and projecting on the pleura. At the apex there was a recent cavity the size of a pigeon's egg, and round it was an area infiltrated with yellow tubercles. In the upper part of the lower lobe there was a considerable area densely infiltrated with gray and yellow tubercles. All the nodules found in the lung were found on section to present the appearance of gray and yellow tubercles. The changes in this lung were most marked and older in its anterior third than in its posterior two-thirds. Adjoining the pericardium, for instance, a considerable area of lung was honeycombed with cavities, varying in size from a large pea to a hazel nut."

In this case the pulmonary cavity was evidently so large that complete cicatrization could not possibly occur; but the point which I want to emphasize is that, as stated above, the diminution in size of the pulmonary cavity meant the formation of a pleural one. Now, my contention is that similarly a collection of pus in the pleural cavity will, if allowed to drain through the lung, readily produce a pulmonary or bronchiectatic cavity.

In the case of an ordinary circumscribed empyema the lung tissue around is fibrosed from compression and irritative inflammation, and the acts of inspiration, expiration, and coughing have little effect on the pus.

But suppose this pus ulcerates its way through the lung tissue into a bronchial tube? Its escape by the tube is not usually followed by entrance of air into the empyema cavity, and so there occurs an approximation of the pulmonary to the costal pleura, and consequent tendency to obliteration of the empyema cavity. The escape of pus will also, it is to be noted, be favoured by every inspiration, and the approximation of the pulmonary to the costal pleura by expiration and coughing.

In time, by this suction and force-pump-like action of inspiration, expiration, and coughing, the pus will be got rid of, the pleural membranes become again adherent, and in favourable cases this will mean the recovery of the patient. But the course is not always so favourable. The suppurative inflammation at the base of the lung caused by the burrowing of the pus is very likely to induce irritative inflammation and loss of tissue. This loss of tissue has to be made up for by fibrosis and contraction, which, as we have already seen, must act by drawing bronchial walls to pleura, and so tending either to separate again the pleural membranes or to dilate the bronchial tubes.

When we reflect that the act of coughing is all in favour of the dilating process, and that the irritation of the bronchial mucous membrane by the pus will cause increased secretion, and in time a similar distending tendency, we can, I think, understand how in this way, with obliteration of the pleural cavity, bronchiectatic or basal lung cavities are sooner or later likely to be produced.

Since ordinarily we do not see instances of basal cavities which we believe to have been produced by empyemas bursting through the lung until long after all traces of the empyema have disappeared, it is difficult in any given case to be sure that empyema has been the cause. The following is, however, I think, an example of such a case:—

H. P., a little girl of 9, was brought to me at the Infirmary in September 1889. The history was that she had been well till about two years previously, when, after exposure to cold, she had "inflammation" in the right side. The nature of this inflammation could not clearly be ascertained, but she had had pain in the side, cough, fever, and sweatings. After some two months, during which time she was mostly in bed, she suddenly coughed up about a teacupful of fœtid purulent matter. She seems to have improved somewhat after this, but the cough and expectoration of fœtid matter, though in smaller quantity, continued, and she had remained weak and feverish, and was manifestly ill.

On examination, dulness on percussion and cavernous breathing and resonating crepitation were heard over the lower half of the right lung, and some harsh breathing with crepitation at the base of the left.

Becoming gradually weaker, and with the cough and fœtid spit persisting, the child died some six months afterwards. On post-mortem examination, the larger bronchi at the base of the right lung were found much dilated, and the surrounding lung tissue in a state of fibrosis. The pleura all over the lower lobe was adherent except at a spot laterally, where about an ounce of yellow serous fluid was found encapsuled. At the left base there existed, but to a very much less marked extent, a similar condition of lung and bronchi.

In this case there had been, I believe, a small, possibly fœtid empyema, which, bursting through the right lung, had sought to empty itself through a bronchus. In this it had succeeded to the extent of allowing pulmonary and parietal pleuræ to come in contact, but by its irritative and destructive effects on the lung tissue it had caused loss of tissue, fibrosis, and dilated tubes, this dilatation being favoured by the harassing cough which the infective purulent bronchitis necessitated. At first, and probably for months, the right side only had been affected, but latterly extension of mischief to the left lung had occurred, as the result, probably, of some of the fœtid purulent secretion finding its way to the bronchi at the base of the lung on that side. The small encapsuled pleural cavity containing clear fluid might have been either the remains of the original empyema cavity, or a cavity formed as the disease progressed by the traction of the fibrotic lung tissue on the pleura.

What I desire to draw attention to in this paper is that an empyema may act in this way, and be a cause of basal lung mischief, which is very likely to be fatal within a few months or years. I wish also to point out that such empyemas, often small and localized, are not at all uncommon, and often very difficult to diagnose, repeated exploratory punctures frequently failing, time after time, to reveal the purulent collection. Fortunately, however, repeated punctures are perfectly safe if properly carried out, so that practically there is little excuse for failure to recognise and treat such a condition.

In conclusion, I have to allude to the fact that an association between empyema and purulent bronchitis or lung mischief has been noted by Sturges[1] and Drummond.[2] It seems to me, however, that the consideration of the physics of the lungs and pleura, such as has been entered into in this paper, is of very great value in enabling us to understand this association.

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[1] *Medical Press*, July 1, 1891.

[2] *Brit. Med. Journal*, July 14, 1891.

# III.—A THOUSAND CASES OF PULMONARY TUBERCULOSIS, WITH ETIOLOGICAL AND THERAPEUTIC CONSIDERATIONS.

By R. W. Philip, M.A., M.D., F.R.C.P.E., Assistant Physician to the Royal Infirmary; Physician to the Victoria Dispensary for Consumption and Diseases of the Chest, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh, 2nd March* 1892.)

The considerations which I venture to submit to the Society to-night are based on a careful analysis of the records of one thousand cases of pulmonary phthisis, which have been seen, and, in the great majority of instances, have been treated by me during a lengthened period.

I have thought it well to exclude, for present purposes, a relatively small group of cases where difference of opinion might reasonably be admitted as to the diagnosis of pulmonary tuberculosis—a term which I shall employ in what follows as synonymous with pulmonary phthisis. In every instance the diagnosis rested on a consideration of the patient's symptoms and of the physical signs, a graphic and diagrammatic record of which was kept. In cases of doubt—and, apart from this, in a large proportion of the entire number—the diagnosis was rendered complete by the detection of the tubercle bacillus in the sputum.

In examining for the bacillus, I have generally practised a modification of the carbolic fuchsin and methylene blue method, which I have quoted elsewhere.[1] When the bacillar elements have been scanty, and their detection consequently more difficult, I have fallen back on the precipitation and concentration method, suggested by me to the Society in 1886.[2]

The major portion of the present paper will be occupied with a discussion of assigned or assignable etiological factors, which will be taken up *seriatim*, as may be convenient, and I propose to interweave with these certain general therapeutic considerations, as the occasion may suggest. It is not my intention to enter on details of treatment to-night.

*Occupation.*—On the general subject of occupation I need say little. The table emphasizes the acknowledged dependence of phthisis on insufficiency of fresh air and exercise, confinement to badly-ventilated and over-heated apartments, the inhalation of dust, and also, though doubtless to a less degree, on exposure to unfavourable and irregular conditions of temperature, frequent child-bearing, prolonged lactation, and the like. A comparison of the first and last columns affords a striking illustration of the efficiency of occupation as a causal factor. I shall have occasion to refer to the subject in more than one connexion later.

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[1] *Pulmonary Tuberculosis.* By R. W. Philip, M.A., M.D. Edinburgh and London: Young J. Pentland: 1891.

[2] *Transactions of Medico-Chirurgical Society of Edinburgh*, vol. v. New Series, 1885–86.

In respect of the group indicated as labourers, it should be noted that a considerable proportion of its members were trained workmen of various classes, whose chest affection and consequent inefficiency, in some instances accelerated by their own irregularities, had reduced to the position of day labourers.

TABLE I.—*Occupations of One Thousand Tubercular Patients.*

| | |
|---|---|
| Housewives (married), | 141 |
| Clerks and Warehousemen, | 72 |
| Labourers, | 72 |
| Masons, | 54 |
| Salesmen and Saleswomen, | 53 |
| Carpenters, Joiners, etc., | 48 |
| Children, unemployed or at School, up to 18, | 42 |
| Printers and Compositors, | 39 |
| Tailors and Hatmakers, | 37 |
| Domestic Servants, | 35 |
| Bookbinders and Folders, | 31 |
| Dressmakers and Seamstresses, | 27 |
| Porters, | 22 |
| Engineers and Enginemen, | 19 |
| Cabmen, Coachmen, and Carters, | 19 |
| Brassfinishers, | 17 |
| Ironmoulders and Typefounders, | 15 |
| Collectors, | 14 |
| Rubberworkers, | 14 |
| Bakers, | 12 |
| Blacksmiths, | 11 |
| Gatekeepers and Messengers, | 11 |
| Hawkers, | 11 |
| Painters, | 11 |
| Charwomen, | 10 |
| Coalworkers, | 10 |
| Waiters, etc., | 10 |
| Millworkers, | 9 |
| Fishermen and Sailors, | 8 |
| Glasscutters and Grinders, | 8 |
| Plumbers, | 8 |
| Rivetters and Fitters, | 8 |
| Firemen, | 6 |
| Tanners, | 6 |
| Combcutters, | 5 |
| Shoemakers, | 5 |
| Builders, | 4 |
| Glaziers and Gilders, | 4 |
| Police and Watchmen, | 4 |
| Students, | 4 |
| Tin and Wireworkers, | 4 |
| Bankers, | 3 |
| Laundresses, | 3 |
| Merchants, | 3 |
| Shunters, | 3 |
| Teachers, | 3 |
| Athletes, | 2 |
| Corkcutters, | 2 |
| Dairymen, | 2 |
| Farmers, | 2 |
| Musicians (Wind), | 2 |
| Plasterers, | 2 |
| Slaters, | 2 |
| Butchers, | 1 |
| Clergymen, | 1 |
| Engravers, | 1 |
| Fisherwomen, | 1 |
| Gardeners, | 1 |
| Guards, | 1 |
| Medical Practitioners, | 1 |
| Sick Nurses, | 1 |
| Soldiers, | 1 |
| Nondescript Adults, | 22 |
| | 1000 |

*Sex and Condition.*—My statistics show a marked preponderance of male cases, in the ratio of 63·7 per cent. male to 36·3 per cent. female. This is different from the ratio which obtains in the United Kingdom in the aggregate, where sex, uncomplicated by the question of age, appears to play a relatively minor part.[1] Dr Ogle, the Registrar-General, gives the mean annual mortality from phthisis (on an average of thirty years) as—Males 2418, and females 2428, per million living. But my figures accord remarkably with those of the first Brompton Report, which, taking mortality as the test of liability, gives the ratio as—Males 61 per cent., to females 39 per cent. Dr Pollok's figures are—Males 60·7, females 39·2; and Dr Williams' are—Males 62·5, females 37·5. It is of interest to note that the Registrar-General's returns for the city of London show a similar disproportion between the male and female percentage of deaths from phthisis.

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[1] It is to be noted that those figures have reference to deaths from phthisis, while mine refer to cases admitted for treatment.

From the marked divergence of the figures (male 63·7, and female 36·3) I think we may fairly admit, without pressing the matter too far, that the presumption is that in Edinburgh males are more frequently the subjects of phthisis than females.

This view is further supported by the returns of the Registrar-General for Edinburgh, which show a marked preponderance of male deaths from phthisis. In 1887, the figures were—male, 263; female, 221. In 1888—male, 267; female, 219. In the returns (1887) from the nine principal towns of Scotland, Edinburgh is the only one which shows this relation between the sexes. In all the others there is a preponderance of female deaths from phthisis. The figures are as follows:—

| | | | | |
|---|---|---|---|---|
| Edinburgh, . . . | Male | 263 | Female | 221 |
| Glasgow, . . . | „ | 220 | „ | 272 |
| Dundee, . . . | „ | 143 | „ | 233 |
| Aberdeen, . . . | „ | 86 | „ | 103 |
| Greenock, . . . | „ | 68 | „ | 76 |
| Leith, . . . | „ | 64 | „ | 66 |
| Paisley, . . . | „ | 55 | „ | 94 |
| Perth, . . . | „ | 21 | „ | 26 |
| Kilmarnock, . . | „ | 26 | „ | 35 |

Several factors might be cited in explanation of this disparity. The following considerations suggest themselves:—

1. *Cœteris paribus*, the phthisical condition is likely to be more quickly noticed in the case of the hard-working members of a community; that is to say, that early depreciation of strength will be sooner observed by such individuals, leading them to seek help. The comparative absence from Edinburgh of large factories and mills, employing great numbers of female hands, will tend to accentuate this element in relation to the male as compared with the female.[1] This might help to explain, also, how it happened, as a rule, in the present series of cases, that the progress of the disease was generally less in the male subject, *when first seen*,

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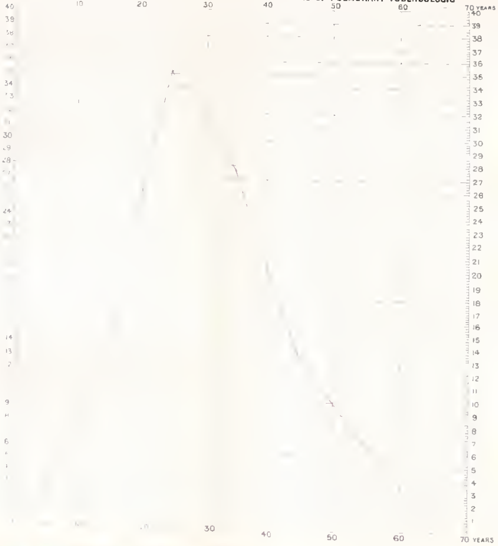
[1] It is of interest to note, in this connexion, the relation of the sexes to the industrial occupations in different centres, as these are shown in the Census returns for 1881. Taking the four chief towns of Scotland they are as follows:—

| | | | | |
|---|---|---|---|---|
| Edinburgh, . . . | Male | 42,146 | Female | 14,034 |
| Glasgow, . . . | „ | 113,986 | „ | 56,647 |
| Dundee, . . . | „ | 29,702 | „ | 27,938 |
| Aberdeen, . . . | „ | 19,775 | „ | 9,014 |

The proportion of male to female industrial workers is much greater in Edinburgh than in any of the others. A comparison of this table with the phthisis returns just cited will be found instructive.

II TO SHOW THE AGES OF ONE THOUSAND CONSECUTIVE CASES OF PULMONARY TUBERCULOSIS



than in the female. The latter seemed more tolerant, in many instances, of the advance of the disease, because, perhaps, the calls on her strength were less continuous and urgent. The converse would naturally be the case in centres where there was a large demand for female labour of an exhausting kind.

2. There can be no question, I think, that in the female the process, when once established, is, as a rule, more rapid. On this head my observations coincide with those of most other physicians. Other things being equal, I believe the prognosis in respect of duration is in favour of the male by from twelve to twenty-four months. Hence, even should the *mortality* list be more equal as between the sexes, there will tend to be a larger proportion of male chronic patients able to attend as out-patients at a given time.[1] It would appear that the male patient has a greater power of resisting the advance of the disease. I shall have occasion to note later that the term of life during which males are liable to succumb to the disease is a larger one.

With regard to *condition*, my statistics would indicate that there is an almost equal liability to phthisis in the married and unmarried female. In the male they seemed to indicate that the married was more liable than the single (married, 374; single, 263). But the greater part of my cases belonged to the working classes, among whom early marriage tends to be the rule.

While on this topic, I may add that frequent pregnancy and prolonged lactation appeared to me partly responsible for about 6·5 per cent. of all the female cases, or, if we take the cases occurring in married women only, for 18 per cent.

Between the menstrual function and the occurrence of phthisis the only relation I have been able to trace is the evident one of the tendency to suppression of the menses in presence of the disease, and to the aggravation of several of the symptoms of phthisis about the normal period. This was especially seen in the occurrence of hæmoptysis, which it would be hardly correct to term vicarious. A similar aggravation of symptoms has frequently been noticed in presence of constipation, and, in many cases, one of our best remedies for hæmoptysis is a dose of calomel.

*Age.*—In Chart II. I have reduced to a curve the main features traceable in the combined 1000 cases. In childhood, below 10, there are relatively few cases (1·2 per cent.) During the decade from 10 to 20 there is a comparatively rapid rise to 15·4 per cent., the rise being, however, not equally distributed over the ten years, but appearing especially during the five years from 15 to 20 (from 10 to 15 reaching 3·1 per cent.; 15 to 20, 12·3 per cent.) This is followed during the decade from 20 to 30 by a more rapid rise (to 35·3 per cent.), the maximum being reached between 25 and 30. Then comes a slight dip for the decade between 30 and 40 (27·6 per cent.), the percentage between 30 and 35 remaining, however, approximately on a level with that between 25 and 30. A more rapid fall takes place between 40 and 50 (to 13·4 per cent.), and similarly between 50 and 60 (to 6·4 per cent.) After 60 the number of cases in my list is relatively small (0·7 per cent.)

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[1] This applies with especial force to such a centre as Edinburgh. See footnote, page 1000.

The maximum of frequency for the collective number lies between the ages of 25–35.

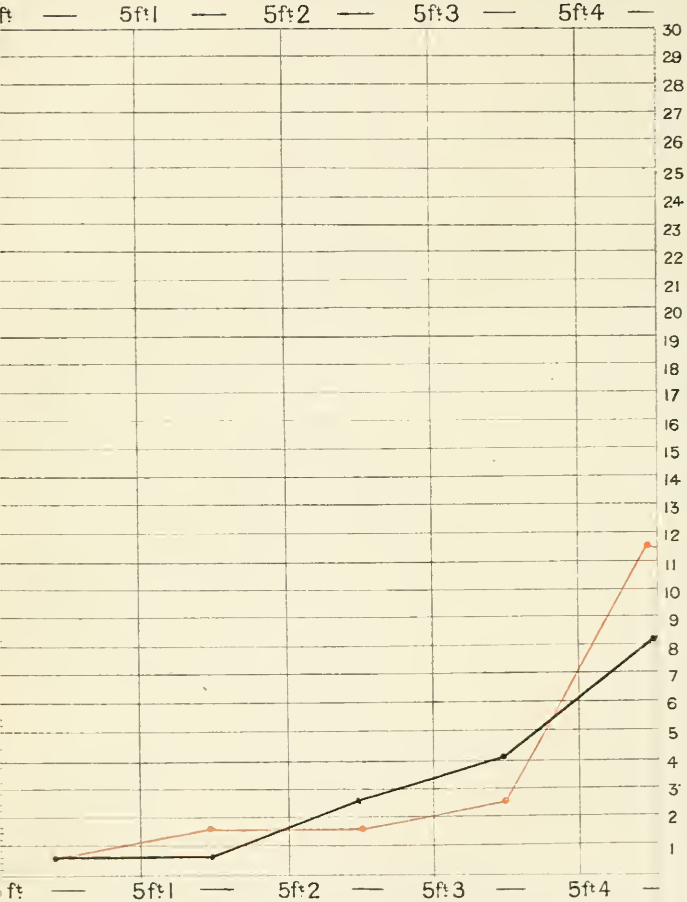
On analyzing the age ratio of the sexes singly, I have found that the crest of the wave is reached at different points. Taking the male patients apart, I have noted it as being reached between 35 and 40, while in the female it is reached below 30. In other words, the most frequent date for the occurrence of phthisis would seem to be earlier in the female.

These results accord generally with those of several previous observers, and with the tables of the Registrar-General, where mortality is the test of frequency. They emphasize the fact that phthisis in the male is not so specially a disease of *adolescence* as is sometimes suggested, and that the occurrence of the disease is frequent up to middle life. They would also seem to support the view of the greater chronicity of the process in the male patient, to which I have already made reference. My results will not allow me, however, to go so far as some authors who have indicated by statistics, *e.g.*, that in Germany the maximum of frequency is reached about 60.

While speaking of age, I should add that the general character of the cases has, in my experience, shown a tendency to alter as age advances. After 30 to 35 in the female, and, say, 40 in the male, the type becomes more chronic. But my records include several instances of acute phthisis occurring in patients much further advanced in life.

In judging of the cause of this apparent difference in the age of greatest frequency in the two sexes, one naturally falls back on the difference in time of the occurrence of sexual maturity. Probably this plays *some* part in respect both of the earlier appearance and disappearance of phthisis in the female. But it must be borne in mind, and my cases corroborate this strongly, that in childhood, from 5 years onward, the frequency of phthisis is greater in the female. The determination of the greatest frequency at slightly below 30 in the female, would, so far as my statistics go, seem to be in part explained by reference to the depressing influence of frequent child-bearing and prolonged lactation. As to the earlier diminution in frequency in the female, it is possible that some credit is to be given to the incidence of the climacteric. I am rather inclined, however, to lay stress on the fact that men are, by the necessity of work, exposed during a more prolonged period to the influences of the causes which induce the disease. In other words, the average length of a woman's working life is, from various causes, shorter than that of the male, and when she is subjected to

III. TO ILLUSTRATE THE QUESTION



Black indicates percentage frequency of Phthisical Pati correspondingly prejudicial influences, she succumbs earlier and more rapidly.

Similarly, in speaking of the relation of phthisis to growth and development in the male, it must be remembered that the periods in which phthisis appears more frequently are those also when the strain of continuous hard work is greatest, and the exposure to predisposing conditions most common.

*Height.*—The question of a possible relation between height and the occurrence of phthisis is worthy of consideration here, in view of the interesting investigations by Dr James, communicated to the Society[1] some years ago. My records have enabled me to compare the height of some 500 *male adults* suffering from well-marked pulmonary tuberculosis, and that of a corresponding number of male adult patients, consecutively presenting themselves for examination and suffering from different affections. I have arranged Chart III. to indicate the percentage number of cases from the two groups at successive heights. The *black* line records the results from the phthisical 500, the *red* line has reference to the other group. A glance at this will indicate that the two curves are approximately similar. It will be noticed that the maximum in both is reached at 5 feet 6 inches.[2] Both continue high till 5 feet 9 inches, after which in both cases there is a sudden fall to 5 feet 10 inches, from which point there is but a slight fall to 6 feet. It will be noticed, however, that the phthisical curve falls further than the other. Dr James's table shows a similarity with my chart in respect of height generally, which corresponds with statistics from other sources with reference to the industrial classes, but it differs from mine in respect of the phthisical group. According to his statistics the summit of the wave of phthisical frequency is reached at 5 feet 8 inches, *i.e.*, 2 inches more than the height of greatest frequency in the male adult, and the phthisical curve remains thenceforward higher than the other till 6 feet is reached.

On these figures Dr James rests the view that tall men are relatively more liable to phthisis than short men, and, while admitting that the number of phthisical cases he has included—about the half number on which the Chart I have shown you was prepared—he elaborates a theory of the relation between tall individuals and a tendency to phthisis with which I cannot get my facts to agree. He goes so far as to say that, "the diminution in the stature of men in the large towns and manufacturing districts of the British Islands must, like all Nature's acts, be regarded as representing, in the circumstances, a salutary process."[3]

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[1] *Transactions of the Medico-Chirurgical Society of Edinburgh*, vol. iv. New Series, 1884–85.

[2] This is of interest as corresponding with the mean height of the artisan class (male adult) as determined by the Anthropometric Committee of the British Association, and by other observers.

[3] *Pulmonary Phthisis.* By Alex. James, M.D. Edinburgh and London, Young J. Pentland, 1888.

It is not my purpose to deal critically with other theories just now, but rather to give a summary of results. But I would submit that as the tall man has a greater respiratory capacity and presumably a greater assimilative power, the tall man has something to spare which is not available to the smaller man, and has, consequently, a better chance of withstanding the adverse conditions which tend towards the production of phthisis.

The figures I have presented to you in the Chart would indicate that the relation of phthisis to height is a simple one. The correspondence between the red and blue curves would point to the occurrence of phthisis with practically equal frequency in persons of all heights, the occurrence being determined by other factors rather than by height proper, such as formation of chest, or rather, we may say, disproportion or deformity of chest architecture, and particularly by the conditions of life to which the individual is subjected. I fear that, apart from racial peculiarities and the effects of intermarriage, the smaller stature which has been noted as prevailing in large towns and manufacturing centres is one of the tributes which Nature demands from so-called advancing civilisation, and coupled as it often is with anæmia, indigestion, and other infirmities, is to be regarded as evidence of depreciation rather than of preservation.

*Heredity and Contagion.*—I have analyzed the records in relation to these subjects and sifted the evidence with care. My statistics show that in 23·3 per cent. a definite family history of tuberculosis could be traced. In some 5 per cent. more there was a shade of dubiety as to the facts or the evidence. In the remainder, *i.e.*, allowing a further small percentage for inaccurate statement, in 70 per cent. the family history was reported as good, so far as tubercular taint was concerned. The proportion then of hereditary predisposition is a small one,—considerably smaller, I think, than is often supposed. I may add that while diversity of statement occurs among the authorities, the consensus of opinion does not increase the percentage much. My figures agree with those of Dr Flint in America and Dr Pollok at home, who give the percentage of heredity in the widest sense as 30 and 24 respectively. The percentage I have quoted includes a small proportion of cases which must be included as examples of probable contagion. I should add that I agree with those who think that the hereditary element is a more evident factor in the female subject of phthisis.

The question of hereditary influence is further complicated if we consider that one-seventh of the whole mortality of Europe is due to tubercular disease. The number of heads of families included in this calculation must be large. If direct heredity had the significance as a determining factor which some have supposed, we should expect that the number of cases in which it was traceable would be enormously greater. This becomes more evident if we consider how rapidly a man's lineal ancestors multiply as we pass backward in time. Says Blackstone in his *Commentaries*,[1] quoted by Sir James Paget,—"Of lineal ancestors, every man hath two in the first ascending degree, his own parents; he hath four in the second, the parents of his father and the parents of his mother; he hath eight in the third, the parents of his two grandfathers and grandmothers; and by the same rule of progression he hath an hundred and twenty-eight in the seventh, a thousand and twenty-four in the tenth, and at the twentieth degree, or the distance of twenty generations, every man hath above a million of ancestors." Now, correcting this, as suggested by Paget, in respect of possible marriages of blood relations, "we may safely estimate that at 'the distance of twenty generations every man hath many more than half a million of ancestors;' and the estimate of 'above a million,' though inaccurate for the number of ancestors, is necessarily accurate for the number of times of transmission of hereditary properties."

The figures I have cited and the considerations suggested seem to limit considerably the direct operation of hereditary influence in phthisis, as frequently understood. I am far from excluding, however, a certain relationship,—in the sense that parents weakened from different causes are likely to produce a progeny with less power of resistance. I believe we have to deal with the hereditary transmission of less resistant tissues. Sometimes, too, tissues which resist strongly one form of attack yield readily to another. We have only to think of the frequency of rheumatism in certain families, or of their liability to certain forms of infection, as, *e.g.*, the exanthemata. We must bear in mind that a corresponding condition of relative susceptibility or insusceptibility has been frequently recorded of different races of man in the presence of contagion introduced for the first time from without. Similarly one of the difficulties of some departments of bacteriological research lies in the fact of the insusceptibility of certain animals to certain contagions and poisons, and some of the newer departures in the department of therapeutics have rested on the recognition of such principles.

It seems to me we may safely limit the influence of heredity in respect of our present subject to the production in the tissues of a susceptibility to, or at least a diminished power of resisting the tubercle bacillus. The recognition, within recent times, of the specific element has already cleared away some of the difficulties which beset the problem of heredity.

This raises naturally the question of *contagion*. Of the cases under review, 6·7 per cent. afforded definite, and, in my judgment, not easily controvertible evidence of the existence of contagion. I discussed the "pros" and "cons" carefully in each case, and only admitted such as seemed sufficiently well established.

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[1] Blackstone's *Commentaries*. Ed. Sweet, 1844. Vol. ii., p. 202. See Paget, *The Alcohol Question*. London, Strahan & Co.

The series includes the following types:—

1. Where infection seemed to pass from husband to wife Several cases. In two being double (a second wife falling victim), and in one, the infection apparently passing from the widow to her second husband.

2. Infection from wife to husband. Several cases. In one instance two husbands successively were affected. Infection from wife to husband has, in my experience, been less frequent than the converse.

3. Infection from children to mother. Two cases. One case was especially significant. A mother advanced in years, previously healthy, nursed a phthisical son for several months, became infected, and died after a short illness.

4. Infection from children to father. Three cases. In one instance, a daughter became phthisical at a boarding institution, returned ill to her parents' house, and soon after, the father, previously healthy, became affected. In another case, a son, long ill, infected his father, an old man, who nursed him with much devotion.

5. Infection from step-mother to step-daughter. One case. Step-daughter, previously sturdy, aged 16, nursed step-mother, whose only boy suffered from tubercular disease of bone, through long phthisical illness, and showed signs of phthisis about date of mother's death.

6. Infection from companions, sleeping or living together, not related. Several instances, both male and female.

7. Infection from tubercular virus by external injury. Two cases. One patient had hand poisoned, the wound healed badly, and enlargement of cubital and axillary glands followed. A superficial tubercular affection appeared close to the elbow, warty in form, with cicatricial development. Shortly after a somewhat rapid pulmonary tuberculosis manifested itself.

8. Infection from brother to sister, and conversely. Several instances. This has been more common, in my experience, from brother to sister.

9. Infection from father to children. Several instances. In more than one, the development of the case in the father was slow, in relation to one of the pneumokonioses. Later, the course became more rapid and evidently tubercular. During the latter stage, two daughters (one grown up), previously healthy, became affected with tubercular disease.

10. Infection from mother to children. Several instances.

I have advisedly placed groups 9 and 10 last. As examples of transmission from parent to child, they more readily suggest the influence of heredity. But in recognising a possible hereditary bias, as we have seen, we have only prepared the way for effective contagion. In the case of parents (especially the mother) and children, the conditions for contagion are particularly favourable. One has to admit—(1), the possible transmission of the bacillus from parent to offspring in utero; (2), such transmission by the milk;

(3), infection through kissing and fondling; and (4), from particles of sputum, carelessly disposed in the contracted dwellings of the poor.

The instances of *probable* infection might be considerably increased. But all the cases I have admitted for present purposes have been carefully tested. Along with similar evidence from other sources, they compel me to admit the contagiousness of phthisis, apart from the abundant experimental corroboration which we possess. I am further led to believe that a considerable proportion of cases which have been attributed vaguely to other contributory agencies are thus explicable. The vitiated air of our crowded workrooms, dwellings, and offices is bad, but is chiefly prejudicial because of the presence of the tubercle bacillus. Granted that you have one or more consumptives present in such room, you will have the dispersion of the contagious element perhaps with the breath, certainly sometimes in the involuntary expectoration which attends a cough, and always in the sputum, which is disposed usually anywhere and everywhere, both in workrooms and dwellings.

Hence, while insisting on the erection of large, well ventilated and lighted buildings, it is of the first importance that patients be educated practically regarding the danger which accompanies such indiscriminate expectoration. When possible, spitting must be forbidden, just as smoking is, except into special receptacles containing water, or it may be an antiseptic fluid, the primary object being to prevent the expectoration drying. Further, it seems to me our duty to insist on the exclusion, from crowded workrooms and factories, of patients with pronounced phthisis. I know—and I daresay we all know—of more than one such workshop, where patients struggling with a rapidly advancing phthisis are in more or less regular attendance, to the certain detriment of their own chances, and at infinitive risk, in my judgment, to those who are associated with them. None of us have power to prevent such attendance meanwhile, and the only way to effect the reform is to recommend some system of medical supervision on the part of those in management, or of the city authorities.

Further, in this relation, I am daily confirmed in the conclusion which I ventured to suggest in a Health Lecture[1] on this subject in 1890, that tubercular disease should be included in the list for compulsory returns to our Medical Officers of Health. It seems to me that no great harm could follow this extension of a most valuable method, which, though at first warmly opposed in the case of the other infectious diseases, has been found on all hands to work smoothly, and has proved of immense service in the checking of disease. To illustrate the significance of it in relation to phthisis, I have prepared a map of Edinburgh to indicate the streets and places in which patients coming under my observation with pronounced pulmonary tuberculosis, during some three years, resided. A red dot indicates the residence. I have frequently found that several cases were present in the same stair or house, so that the localisation is only approximate. Some of the older parts of the city show an almost continuous colouring of red. The mere announcement by the medical practitioner of such case need not interfere with the full liberty of both patient and doctor, and would not be followed by any interference in the great majority of cases. But it would make certain that both doctor and patient were alive to the necessities for the adoption of the general principles of disinfection during life and after death, which, meantime, are very largely ignored in connexion with phthisis. I refer more especially to the disinfection of discharges, and of rooms long occupied by dying phthisical subjects. It would probably necessitate—what, apart from this, ought to exist—an asylum or home for dying cases of consumption from among the very poor. This is a question affecting preventive medicine, and is separate from the other question of the desirability of the establishment of a Consumption Hospital, which should exist for the treatment of the disease, more particularly at a stage when there is a reasonable hope of effecting some good. I cannot help thinking that a portion of our City Hospital—failing any other arrangement—ought to be devoted to the reception of such dying cases, whose miserably close and ill-ventilated surroundings are not only unnecessarily hurtful to themselves, but must accentuate tenfold the risk of contagion to the rest of the inmates—perhaps a family of young children. If there be the slightest degree of truth in the contagious view of tuberculosis, such chronic foci of infection ought not to be permitted to smoulder under conditions which are calculated to encourage the fatal propagation.

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[1] *Consumption.* Edinburgh Health Series, 1890.

Passing from this subject of pre-eminent importance, both from the pathological and the therapeutic point of view, I would beg your consideration of some other etiological factors of interest.

First of all, a few words as to the *more frequent seats of pulmonary tuberculosis.* The records confirm the view that in the vast proportion of cases the process is apical from the first. In 2·3 per cent. only had it exclusively or especially a basal commencement. Previous observations have differed much regarding this subject. Thus Cotton and Percy Kidd have separately placed the percentage at 0·2, while Bowditch, Flint, and others have recorded considerably larger proportions,—the last named citing approximately 4 per cent. As to the side more particularly involved, opinions have been also various. My statistics would indicate that there is no very great difference between the two. In 40 per cent. the left side appeared affected alone or in pronouncedly greater degree; the right in 34·3 per cent.; and both seemed approximately equally involved in 25·7 per cent.

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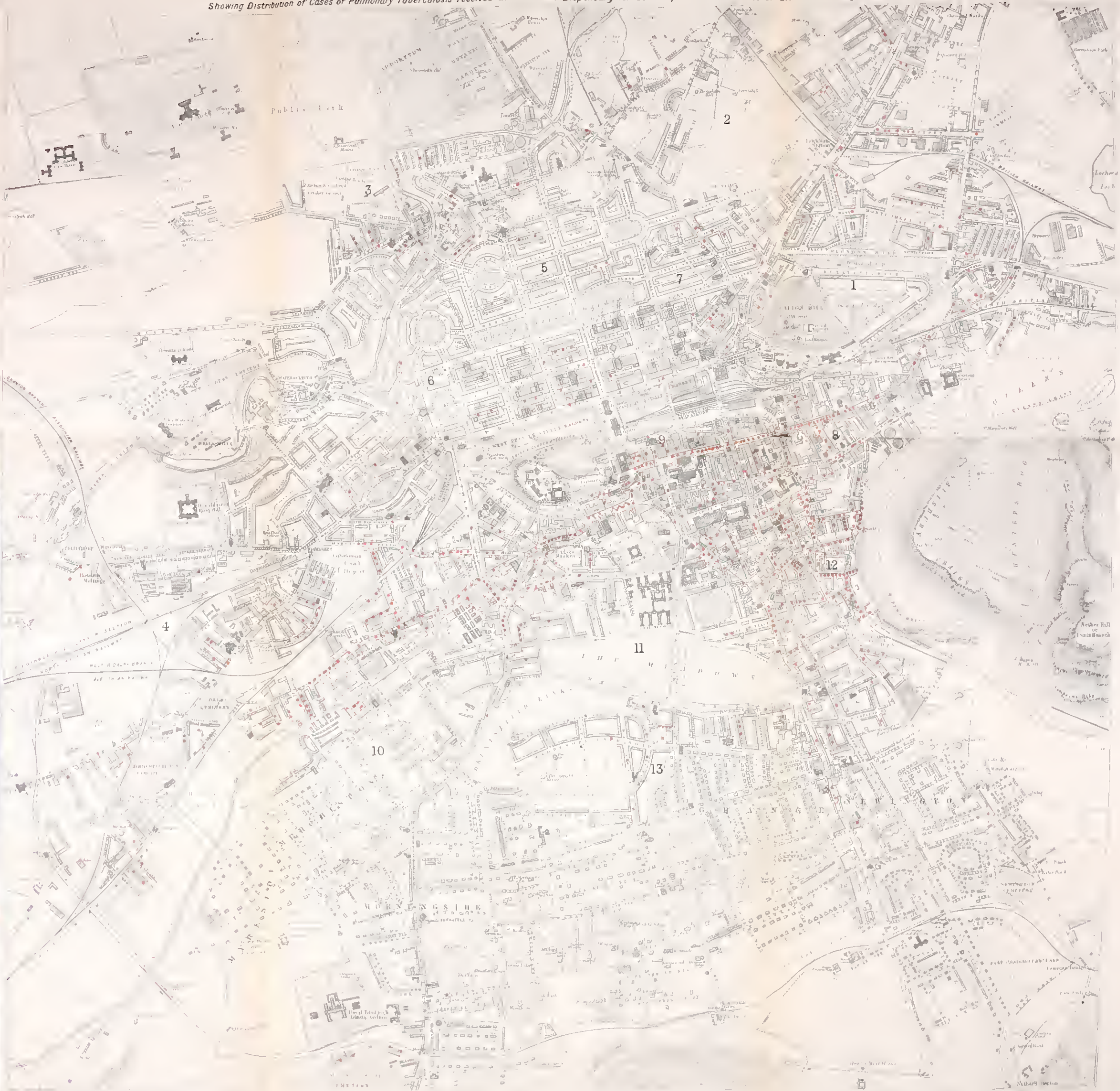
# MAP OF EDINBURGH

*Showing Distribution of Cases of Pulmonary Tuberculosis received at the Victoria Dispensary for Consumption and Diseases of the Chest during Three Years.*



*The red dots indicate approximately the residence of the patients. The streets or divisions of streets have been marked with care. For present purposes it has been deemed unnecessary to localise the cases of particular numbers.*

*Other Assigned or Assignable Causes.*—In reviewing the assigned causes and the mode of onset in the thousand cases, the most striking feature has been the apparent absence of any assignable cause in a considerable proportion. Such absence was noted in some 40 per cent. This renders necessary a further reference to the relation of occupation to the production of phthisis. It accentuates the fact that the occurrence of the disease is largely dependent on ignorance of hygienic conditions and laws on the part of our working people, and negligence or powerlessness in their application on the part of those who know better. Edinburgh is a centre where from the relative absence of large manufactories, one might *a priori* have expected that our working classes should have been relatively free from phthisis. The table of occupations shows a high percentage among clerks, warehousemen, salesmen and saleswomen, tailors, and the like. Such patients report that they have been most careful and regular in their life, that there is no family weakness, and so on. But when one inquires into the conditions of their work, the results are less satisfactory. It is carried on in crowded, perhaps artificially lighted apartments, with little or no attempt at ventilation. As to their diet, breakfast is generally bolted or scamped, dinner is not infrequently taken in the establishment, and the day concludes by their returning home too worn out to do much till bedtime, when they fall asleep in a room equally stuffy and contaminated. As a rule, the patient is so ignorant that he fails to realize the relationship between his life and the disease which threatens him, or so apathetic that he cannot grasp the idea that the conditions can be voluntarily improved—in part at least. Thus of the entire series of cases, only 1 per cent. spontaneously attributed his illness to his sedentary life.

Further, as I have already indicated, there is good ground for supposing that one infected person in a given shop or warehouse may be sufficient, in the co-existence of unsatisfactory conditions of ventilation and of dirty habits in the employés, to disturb many calculations. Hence we are bound to insist on the inspection of our shops and warerooms and offices, with a view to prevent overcrowding and insure proper ventilation. But this must be combined with some arrangement for medical inspection—on the part of our employers of labour in the interest of the workers—which would prevent the participation in such indoor occupations by patients suffering from evident pulmonary tuberculosis. This plan would be rendered unnecessary by the adoption of—or would come to be a subsidiary part of—the system of compulsory notification, which sooner or later, in my opinion, must be faced. However attained, it would in the end be the kindest plan to the individual, guiding him to other departments of work, or to an out-of-door life. It would be a wise policy for the State and community, with a view to the diminution and prevention of the disease. The plan would have the further advantage of conducing to the relatively early detection of cases of phthisis. I know there are serious difficulties, but it seems to me that the time has come for pressing such considerations. I do not for a moment imagine that all is attainable, and I am prepared for further suggestions in improvement or modification of what I have sketched. But I venture to crave the combined and practical aid of the members of this Society in an attempt to obtain for our people the protection which their ignorance and traditional conditions of life prevent their realizing.

Of assigned causes, apart from more general ones, *chill* was cited as the direct agent in 12·8 per cent. This included irregular exposure to extremes of cold and heat in connexion with work, negligent exposure after overheating, or continuance in wet clothes.

In 12·4 per cent. *bronchitis* was assigned as the commencement. Doubtless this was correctly reported in a proportion of the cases. But the relation of bronchitis to phthisis is a complicated one. In patients below par, with feeble respiratory apparatus and depreciated circulatory function, a bronchitis may pave the way to pulmonary phthisis. The bronchitis removes insufficiently: it may hang about as a bronchiolitis, or apparently get fixed as an alveolitis—what has been described elsewhere as an apical catarrh. I need hardly accentuate here the significance of a so-called localized or resident bronchitis, as suggesting—or rather constituting—the initial stage of pulmonary tuberculosis. On the other hand, it is common experience that in the great majority of ordinary cases of bronchitis the event is otherwise. The condition is recovered from completely; or the condition may be recovered from, but a tendency to its recurrence has been established, and the patient has an annual or more frequent attack of so-called winter cough. He may suffer secondarily from circulatory and other disturbance. But he does not, with any great frequency, tend to become phthisical. One recognises, in this connexion, two sufficiently distinct types of bronchitis.

But it is questionable in how far the early diagnosis of bronchitis in some of these cases may have been a correct one, and whether the process, even before the diagnosis of bronchitis was given, was not truly tubercular. From my statistics I have formed the opinion, that the signs of resident bronchitis (localized rhonchi, etc.) are sometimes assigned to bronchitis, when with more complete examination and fuller consideration the diagnosis would have been graver. Those are the cases where examination of the sputum comes to be of special service. There can be little question that death certificates are not infrequently filled up with the cause bronchitis where phthisis should have been recorded. I have seen the sudden supervention of pneumo-thorax in two cases with other signs of phthisis, where up to a fortnight before the occurrence, according to the patient's statement, the condition had been spoken of as bronchitis. Lastly, bronchitis was a frequent complication of most of the cases—requiring treatment *per se*—and tended often to aggravate and accelerate the existing condition.

*Pneumokoniosis.*—In 5·6 per cent. the patient's statement or antecedents permitted a directly traceable connexion between his condition and the inhalation of dust particles. In the large proportion of cases included in my statistics, stone dust was the exciting agent. This is not the place to discuss the pathology of stone-mason's phthisis or other variety of pneumokoniosis. But my experience in Edinburgh leads me to say that in a considerable number of instances,cases which have presumably begun in this non-specific way, and probably presented for some time the features (physical and otherwise) of so-called fibroid phthisis, tail off into ordinary tubercular phthisis—perhaps with more chronic course—as proved by the occurrence of the tubercle bacillus. In such cases I have noted the relative frequency of laryngeal complication. Of symptoms, dyspnœa has seemed to me to assume an unusual prominence in these as compared with other cases of phthisis. Hæmoptysis, while not uncommon, has been relatively less frequent.

*Pleurisy.*—The onset of the disease was attributed to an attack of pleurisy in 8·2 per cent. In judging of the significance of these figures, all we can say, I believe, is that an attack of pleurisy first drew the patient's attention to the chest. It is much more difficult to predict in how many instances the pleurisy, mostly with some effusion, was the *exciting* cause. I suspect that, as occurs with reference to bronchitis, the early diagnosis is often given to the patient, for one or other reason, in terms of the more evident condition, and the concurrent tuberculosis is omitted. The patient is seen later, and gives a history of preceding pleurisy, but is found to be suffering from pulmonary phthisis. In this respect, the evidence of the dependence of the latter on the former is liable to the same fallacies which exist in judging of the relationship between phthisis and hæmoptysis.

While accentuating the probable tubercular nature of many apparently simple pleurisies, I do not wish to exclude the possibility of pulmonary tuberculosis developing in the wake of a simple pleurisy. I have followed some 1·5 per cent. of the cases under review apparently from the pleurisy stage, and have seen signs of consolidation and softening make their appearance later on in one or other side. There is much *a priori* evidence in favour of a relationship. The respiratory function being impaired, the possibility of withstanding the tubercle bacillus is considerably reduced. But there is not always sufficient evidence as to the state of the chest prior to the appearance of the "initial" pleurisy; and the frequency with which pleurisy occurs as a complication of phthisis raises grave doubts regarding the sequence of events in all cases. On the other hand, we have all seen instances of pleurisy, apparently idiopathic or traumatic, not accompanied or followed by phthisis. I need hardly remind you of the frequency with which on post-mortem examination the pleural sac is found involved in patients dying from all conditions.

*Hæmoptysis.*—In 8 per cent. the patients have attributed the commencement of their illness to hæmoptysis. It need hardly be said, however, that it is impossible to accept the patient's statement as having much weight. Often when he is cross-examined it is discovered that other symptoms have really been present. Or in the absence of these, physical examination may show undoubted evidence of pulmonary disease. I fancy we are all agreed that a *phthisis ab hæmoptöe* is a *rara avis*, whose precedents merit an unusual degree of scrutiny. The older view which admitted the occurrence of this rested on a pathology of phthisis which we can no longer accept. The caseation of a simple blood-clot will not now be seriously discussed by pathologists. And the experimental proof that blood (and other fluids) may be effused, accidentally or artificially, into the lung without producing phthisis affords striking commentary. Further, the frequent hæmoptysis which occurs in mitral stenosis, and the relative infrequency of accompanying or complicating phthisis, is important counter evidence. I fear, then, we must admit that the fact of the patient's citation of hæmoptysis as a cause offers little proof. I should add that, in addition to the 8 per cent. we have been discussing, in 18·3 per cent. of the thousand cases which were examined by me, hæmoptysis had occurred once or more frequently after the onset of the initial symptoms, prior to the date of my examination.

*Acute Febrile Processes.*—(*a.*) *Croupous Pneumonia.*—The present series of cases includes some five (0·5 per cent.) only in which there seemed traceable a close sequence of tuberculosis on croupous pneumonia. I confess I do not feel satisfied that in any one of these we could speak certainly of consequence. I am inclined to think, from my own experience, that the termination of a croupous pneumonia in phthisis, as frequently taught, is an extremely uncommon result. I have seen a larger proportion of already affected chests becoming attacked by croupous pneumonia,—although this, too, has seemed to me less common than, on *a priori* grounds, one might anticipate,—and the acute disease has generally run its course naturally. Regarding the supposed cases of phthisis following croupous pneumonia, it would clearly be difficult always to exclude a pre-existing tubercular affection. In fact, it is the more careful examination which convalescence from croupous pneumonia in most cases implies which brings to light the other condition. I am of opinion that no close relationship can be proved between them.

(*b.*) *Measles.*—The relationship existing between phthisis and measles is a much closer one. The evidence is clearest and of greatest importance in respect of the young subject. I find that of the cases of phthisis I have recorded as occurring below fifteen years of age, 30·5 per cent. had a history of recent measles. By far the greater proportion of these fell between the ages of twelve and fifteen. There is little doubt that particularly in measles necessary precautions during convalescence are apt to be neglected. Apart from more acute complication, this is too frequently followed by the supervention and continuance of a low catarrhal state of the mucous membranes, which prepares the way for the tubercle bacillus.

(*c.*) *Influenza.*—In 4·4 per cent. the onset of the tubercular disease was distinctly traced to an attack of influenza. I have investigated these cases with jealousy and some degree of scepticism, and have admitted only such as seemed to me to present substantial evidence of the connexion. It is of interest to note that no instance was included in my first 250 cases, and that during last year the number amounts to one-half of the whole. I am left with no possibility but to accept the view which would connect some of the more recent cases of phthisis in considerable degree with the epidemic of influenza through which we have just passed. I am of opinion that ignorance or neglect of the urgently needed precaution during a convalescence, which has been often improperly curtailed, is largely responsible. I should add that, apart from this, a considerable number of tubercular patients have suffered from attacks of influenza as a complication of their already existing disease. This has frequently led to a serious increase of symptoms. On the other hand, a large proportion of tubercular patients have, in my experience, escaped the epidemic altogether. It is an interesting fact in this connexion that, during the height of the influenza epidemic in Edinburgh, an average attendance at the Victoria Dispensary for Consumption and Diseases of the Chest, varying from fifty to sixty patients *per diem*, was not materially affected.

*Other Constitutional Conditions.*—As to the relation obtaining between other constitutional affections and phthisis, my statistics afford little that is new or significant. In 1 per cent. there was evidence of concurrent *syphilis*, and in something less than 1 per cent. more there was a likely history of syphilitic infection. In 1 per cent. there was a history of acute *rheumatism*, and manifestations of more chronic forms of rheumatism were not infrequent. I have not been able to observe a patient with pronounced tuberculosis affected by a complicating acute rheumatism, so that my experience does not entitle me to confirm or to dispute the alleged antagonism of their acute phases. Similarly I am not in a position to say anything of *gout* in relation to phthisis. There were no definite manifestations of the former in any of my patients. But gout—more especially so far as dispensary work goes—is relatively less frequent here than in other centres. In 0·7 per cent. there was a history of *ague*, acquired abroad, with, in each instance, the recurrence of attacks apparently after the establishment of the phthisical condition. In none of this necessarily small group of cases did the presence of the one condition seem to exclude or to materially affect the appearance or character of the other. In one case only was *diabetes* a precedent condition. It may be well to mention, in passing, that the patient's sputum contained the tubercle bacillus in large numbers.

*Alcoholism* was clearly traceable in 1·4 per cent. Considering the large quota of irregular livers which the Dispensary contingent of my patients supplies, I am surprised that the number of tubercular patients was not greater in which such antecedents had to be recorded, either in respect of history or physical condition. I do not wish to exclude the significance of alcoholism as a possible factor, for which a good deal of evidence has been produced in other quarters. But corroboration cannot be obtained from my statistics. In more than one instance I have quoted, moreover, the history of alcoholism was combined with that of privation,—an etiological factor of some importance apart from the other, and a factor whose importance I may here emphasize in relation to the general body of my results, as in the majority of instances, retarding improvement or recovery.

*Anæmia and Dyspepsia.*—Before passing from the subject of causation, I may be permitted to refer to the frequency with which tubercular disease is masked by prominent symptoms and signs of dyspepsia and anæmia. It is possible to lay undue stress on the statements of patients as to their past history. But I am bound to say that I have met with a seriously large number of cases where, according to the patients' accounts, they had been treated long for dyspepsia or bloodlessness, while examination showed the signs of initial or even pronounced pulmonary phthisis. I feel constrained to emphasize the desirability of exercising the greatest care in concluding that such simpler elements of disease are alone present, and the advisability of renewing the physical examination, from time to time, with the view of obtaining corroborative assurance.

*Complications.*—Sufficient reference has been made to the close relationship existing between pulmonary tuberculosis and pleurisy, bronchitis, and hæmoptysis (*v. supra*). It is hardly necessary to do more at this point than to note that these were frequently occurring elements of complication in the cases now under review. Of the common complication of phthisis with emphysema and hepatic enlargements of various kinds I do not propose to speak, but prefer to limit my remarks under this head to certain laryngeal, cardiac, intestinal, glandular, and integumentary complications.

*Larynx.*—The larynx showed undoubted complication in 10·5 per cent.; and there was a suspicion of affection in some 6 per cent. more. The commonest seats of change were the aryteno-epiglottidean folds and the inter-arytenoid commissure. In a large proportion of cases this assumed the form of a pale boggy infiltration, with or without ulceration. The characteristic pear-shaped swelling of the former region was observed in many instances, apart from loss of substance. In the case of the posterior wall the ulceration was more frequent. The edges of the ulcer were ragged, the surrounding parts were not, as a rule, much reddened, and the gray-looking floor was frequently coated with muco-purulent element. Infiltration of the false cords (with relatively seldom ulceration) and ulceration of the true were not uncommonly noted. Ulceration of the epiglottis, especially of the under aspect, with œdematous swelling of the whole structure, accompanied by grave dyspnœa and dysphagia, was noted in a much smaller group of cases. Such a change implies generally an advanced process, and points to the approaching end. Two patients presented themselves for the first time with such a lesion, and in both instances death followed within a fortnight. In one or two instances the course was more protracted, but the termination was similar. In addition to the more conspicuous changes which have been described, I should add that the larynx was observed to be unduly pale in more than 50 per cent. of all the cases under review,—a pallor which it shared with the adjacent mucous membrane of the palate and palatal arches.

*Heart.*—Special valvular affection was recorded in twenty instances, or 2 per cent. In seven cases, this took the form of mitral incompetence, in three cases, of mitral stenosis, and in six, of combined mitral stenosis and regurgitation. In the remaining four instances, there seemed evidence of pulmonary stenosis. Concurrent aortic disease was not reported in any instance in the present series of cases. These facts illustrate the comparative infrequency of concurrent phthisis and cardiac disease. But they indicate that the latter does not preclude the former condition. My experience has further led me to conclude that cases of phthisis with concomitant mitral disease tend to be of relatively slow progress. In three of the instances I have quoted, where mitral stenosis and regurgitation were present along with well-marked tubercular affection of the lungs, with abundant tubercle bacilli, the course was unusually protracted, and I was enabled to follow them closely for several years.

*Glandular, Intestinal, and other Complications.*—It has surprised me to note the comparatively infrequent conjunction of evident glandular affections with phthisis. Of the thousand patients under review only some twelve, or 1·2 per cent., presented such a condition. In something under 1 per cent. was evidence of tubercular bone or joint affections reported, and a similar number manifested skin affections of tubercular nature, including lupus. A slightly greater number of patients, hardly over 1 per cent., suffered from fistula in ano. In every case those were of the male sex. Diarrhœa was a frequent complication. Very intractable diarrhœa, more evidently tubercular, occurred in from 2 to 3 per cent.

*Results.*—On the present occasion I must limit myself to submitting a summary of the results of treatment. In preparing this I have excluded from consideration all cases which were followed for too short a period to justify a statement of results. In 469 instances the progress was noted at intervals continuously through six months, and in the greater proportion for much longer. What follows has reference to those patients only. In judging of results, it is to be further remembered that most of the patients belonged to the poorer out-patient class, in whom the possibility of successful treatment is seriously prejudiced by pecuniary and hygienic difficulties.

So far as they go, the results have been encouraging. For the sake of convenience I have arranged the cases in four groups, in terms of the results:—(I.) Good, (II.) Improved, (III.) Indifferent, (IV.) Bad.

(I.) *Good,* including those cases only, where continuous betterment in symptoms, physical signs and general condition, was observed during a period of not less than six months. In many instances the cases were followed for one or more years. The chief test of general improvement was the weight, and only such cases were admitted into this first group as maintained an increase of weight of more than 5 lbs. In a considerable number this amounted to over 14 lbs.; in some to twice or thrice that amount. The change in physical signs was tested by reference to the chart of the patient's condition, which was made when first seen. Regular notes were kept of the changes from time to time, as also of the symptoms. This group includes 117, or 24·94 per cent.

(II.) *Improved,* including cases, where improvement was definitely recorded, but to a less degree; where, for example, the increased weight was less constantly maintained, or to a less degree, or where the amelioration in symptoms or physical signs was less regular. No case was admitted into this group where the physical signs did not show material improvement. This group includes 163, or 34·75 per cent.

(III.) *Indifferent,* including cases, where the patients—observed during a prolonged period—fluctuated from better to worse, and from worse to better, but did not make steady progress, and on the whole tended downwards. This group includes 113, or 24·1 per cent.

(IV.) *Bad,* including cases, where there was a progressive loss of weight, and more or less rapid advance of the signs of the disease, with sometimes the supervention of urgent symptoms, leading to death. This group includes 76, or 16·2 per cent.

# IV.—THE NATURE OF HYSTERIA.

By LIM BOON KENG, Queen's Scholar of the Straits' Government; Curator of the Library of the Royal Medical Society; Student of Medicine, Edinburgh University.

(*The Substance of a Communication to the Royal Medical Society, 4th March* 1892.)

THE subject of this paper is probably as old as medical literature itself. Yet the account given of it in our ordinary textbooks is far from being satisfactory, in spite of the fact that most medical writers, from Hippocrates downwards, have attempted to solve the problem. Indeed, a reference to the literature of this "neurosis" is not likely to give one much encouragement in the study of its nature. Instead of finding our difficulties solved, we are at a loss to know how to effect an escape from the tangled web of ancient, mediæval, and modern theories, whose number is legion! The doctrines of Hippocrates and his followers, founded on those of Pythagoras and Plato, are interesting enough; whilst the teaching of Galen, embodying as it does the essence of the humoral pathology of the older school, shows a decided advance, inasmuch as Galen and Ætius deny that the uterus moves from its place. According to Hirsch, in the Brahminical hymns hysteria is referred to as a disease of the nervous system. But in the Middle Ages, science was in such a condition that demonology, which the Coan sage successfully discarded from medicine, again occupied the attention not only of the ignorant, but also of the learned. The credit belongs to the much maligned Paracelsus for boldly asserting, amidst much opposition, that the epidemic dancing manias were not due to the influence of evil spirits or such like. When the anatomy and physiology of the nervous system became better understood from the works of Willis, Sylvius, Descartes, Haller, and others, numerous authors began to regard the nervous system as the seat of hysteria. But from the time when the uterus was regarded as a roving animal, down to the eighteenth century, hysteria had been regarded as a malady peculiar to women. Sydenham was among the earliest observers to show that this neurosis was also seen in men, although he did not seem to make a distinction between hysteria and hypochondriasis. Without attempting to consider the views of Piso, Lepois, Stahl, Hoffmann, Cullen, Pinel, and a host of well-known writers, we pass to the most widely accepted theory in the present generation. Some thirty or forty years back, Romberg, Bright, Copland, and others, associated the uterus with the nervous system in explaining the nature of hysteria; but no authority now maintains that uterine irritation or congestion is an essential element.

The favourite theory accepted now-a-days is, of course, more scientific and rational than that of Piso or any of his contemporaries. It explains, however, as little as did "the animal spirits" of Sydenham and his school. The result is, therefore, no progress is made in the study of hysteria. In hospitals, cases of this affection are well recorded, but nothing is done in the way of research that is calculated to increase our knowledge of the pathology of hysteria. So long as no attempt is made to investigate this complex disease beyond staring, as it were, at our patients, no advancement need be expected. What line of research, then, is open to us? The answer will appear quite obvious when we have discussed the nature of hysteria in the light of modern physiology.

Hysteria is often described as a neurosis resulting from defective inhibitory power, or caused by a perverted will. The emotion and imagination have, as it were, rebelled against common sense and judgment. But does this theory of "faulty inhibition" really inform us much as to the nature of the malady; does it not rather tend to cover our ignorance? How often one hears "a general neurosis" or "functional disease" mentioned in reference to hysteria! These words mean nothing more than this—the disease exists, but we are ignorant of its nature. Unfortunately for some of us, these terms are sometimes employed as if they imply pathological entities. The perverted will, the exalted emotion, the erotic condition, the loss of controlling power, or the diminution of mental activity, cannot, properly speaking, be the cause of hysteria any more than can we say that apoplexy is due to the loss of nerve power on one side of the body. The undue activity of the ideational centres and the diminution or perversion of volitional power are surely only the manifestations of the hysterical constitution. They presuppose a morbid condition which produces them rather than are in themselves causal factors in the production of hysteria.

The symptoms of mild cases of hysteria point to a morbid condition of the functions of the higher parts of the brain. They are capable of being explained by some *functional* disturbance, truly so called, of the cells concerned in ideation. The habit, education, and mode of life of the individual may be sufficient to produce this neurotic condition. It is more common in women than in men, simply because females are more easily excitable and more emotional than men. The perversion and exaltation of imagination may come on gradually or suddenly, according to the nature of the exciting cause. But the activity or sluggishness of the mental functions depends upon the same laws as those that regulate the functions of other tissues. The whole question, therefore, of the action of nerve-cells—sensory, psychical, motor, or organic—is at bottom a chemical problem. The amount and character of the work done by the cells of the cerebral cortex determine, no doubt, the extent of waste products discharged into the circulating medium, and also the properties of these effete or transitional compounds. These cells must, like other cells, possess a maximum and minimum limit to their activity. Within this range their metabolism may be increased or diminished, and likewise the waste products of this intra-cellular change will vary, but they are not likely to produce obvious evil effects. They, no doubt, are largely concerned in causing the multitude of subjective phenomena complained of by hysterical patients. But it must be remembered that the perverted psychical functions are quite sufficient to give rise to nearly all the symptoms. Bad moral training, undesirable environment, sentimental reading, undue emotional or sexual excitement, especially if often repeated, aided by idleness or late hours, or both, may so disturb the psychical processes that the nervous system becomes exhausted. In this condition, those parts of it which have been little or not all influenced by the will may be the first to indicate the *irritability* of the nervous system. But if the will, as is so often the case, has never been put to much use, then the weakness tells principally on the cells concerned in volition. In other words, this breakdown shows itself through the weak points. The inherited neuropathic diathesis is therefore an important element in the causation of hysteria. But even in one without a neurotic hereditary history constant undue attention to trifling sensations will and must, according to the law of summation of stimuli, produce in the end mischievous results by altering the modality of the normal processes in the nervous system. As surely as each additional link in a chain adds to its length, so does each response to central or peripheral stimulus augment the cell-activity occurring between the arrival of the afferent and the discharge of the efferent impulse. Thus ovarian irritation, fright, and so on, produce in such persons, neuropathic or otherwise, the characteristic features of hysteria. The constant association of this condition with movable kidney lends some countenance to our view. As an example of how a diminution of action in the nerve-cells will explain certain cases of hysteria, it will suffice to point out the effects of the use or non-exercise of the will. Every one is aware of the difficulty of getting up early in the morning, especially if unaccustomed to do so. A person may lie wide-awake—may feel he has something to do—but cannot, rather will not, muster up enough courage to rise. The perversion of the will in certain cases of hysteria is an example of this condition in an exaggerated form. Under an unusual stimulus the greatest sluggard will be too glad to get out of his bed, hours before the usual time. In like manner, by an unusually active stimulus we may bring these patients suffering from mild forms of hysteria to their common sense. No doubt, as Dr C. H. Jones remarked, a good whipping will sometimes do more good in these cases than all the anti-spasmodics, and will prove as efficacious as the much vaunted hypnotic influence. In short, a moral treatment is what is required. This is much emphasized by Dr Reynolds. In Dr Wyllie's female wards in the Royal Infirmary a stomach syphon-tube hanging by the bedside sometimes acts as a charm in preventing vomiting which, perhaps, cannot be easily controlled by sedative medicine.

But hysteria may show itself in much graver forms than we have hitherto considered. Besides subjective phenomena, it may produce symptoms that closely simulate those of organic disease. Sir J. Paget's chapter on "Nervous Mimicry" brings out this point very well. In these cases, which we must regard as the graver manifestations of hysteria, the *histokinesis* may be supposed to have passed beyond the usual range, or may have been otherwise perverted. In consequence, abnormal transitional products are thrown into the blood, and affect those parts most, or first, or solely, according to their affinities for them. In this way, probably, are produced the convulsions, paralysis, hallucinations, delusions, erotomania, visual aberrations, coma, and other phenomena, which are more or less permanent, until the patient has received proper treatment. In these cases, too, the purely nervous action is not ignored, but it is maintained that apart from the perversion of nervous function, waste products, the result of this state of the nervous system, aggravate the condition. What the nature of these poisonous bodies may be is a subject for investigation. It is in the blood and body fluids that they must be looked for. Possibly they may be of the nature of albumoses or proteids of some kind. At any rate, the researches of Gautier justify our supposition, which is made only as a basis for purposes of investigation. In short, this assumption opens up a new line of research which, even if it does prove our supposition to be entirely fallacious, must tend to throw more light on the subject.

In conclusion, the nature of hysteria may be briefly said to be a psychico-chemical disturbance of the nervous system. The constant presence of nervous symptoms in chronic metallic poisoning, in malaria, lithæmia (Murchison and Fagge), some forms of diabetes mellitus, and other diseases of allied nature, point to the importance of suspecting the presence of chemical bodies in the blood. Dr Weir Mitchell's method of treatment is so valuable and efficacious, because it insures the removal from the body of waste products, whilst it tones up the nervous system. If this paper seems too wildly speculative to those who decry hypotheses based even on established facts, then the writer may ask what we know of the nature of diseases like diabetes, gout, rheumatism, and other forms of blood-poisoning? Dr Ferrier, on a recent occasion, referred to the value of speculations, and defined their proper sphere. In his great work he adopts a passage from Lewis as his motto—"Indeed every discovery is a verified hypothesis." The writer only hopes that this imperfect paper may lead some who have the opportunities, to make a rational research into the nature of hysteria; so that in the treatment of this common malady, it may not be said of us: '*Medicus nihil aliud est quam animi consolatio.*'

## V.—NOTES ON A CASE OF MYXŒDEMA TREATED BY THYROID GRAFTING.

By JOHN MACPHERSON, M.B., F.R.C.P.E., Stirling District Asylum.

(*Patient exhibited before the Medico-Chirurgical Society of Edinburgh, 2nd March* 1892.)

THE history of our knowledge of myxœdema, based upon the experimental researches of Mr Victor Horsley in this country, and of Dr von Eiselsberg and Professor Kocher on the Continent, is so well known that it is unnecessary for me to detail it. The chief English literature of the subject is to be found in Mr Horsley's Brown Lectures, 1885, the Report of the Clinical Society of London in 1888, and Dr Byrom Bramwell's *Atlas of Clinical Medicine*, vol. i., 1891. Since then some experimental clinical cases have been recorded relating the effect of grafting the thyroid gland of a sheep upon myxœdematous subjects. The chief of these was published in *La Semaine Médicale* for 13th August 1890 by two physicians of Lisbon—Drs Bettencourt and Serrano.

In the *British Medical Journal* for 10th October 1891 there are two independent articles—the first by Dr Murray of Newcastle, and the second by Mr Fenwick of the London Hospital—both describing the result of the hypodermic injection of a prepared extract of the thyroid gland in cases of myxœdema. The authors of these articles, separately and independently, reason that as the beneficial result of the grafting of the gland is so immediate, it must be due, not to the vascularisation of the gland tissue in the human body, but to the rapid assimilation of the free glandular secretion.

That their reasoning was correct is shown by the satisfactory results obtained in both instances by the hypodermic injection of the gland extract.

In the case which I now present, the same almost instantaneous relief of some of the most pronounced symptoms was manifest soon after the operation, and this speedy effect of treatment was, I have no doubt, due, as in other cases, to the absorption of the secretion of the thyroid gland. But I have also reason to believe that a considerable portion of the gland I grafted became ultimately vascularised in the body of the patient; and I cannot help coming to the conclusion that where there is the possibility of the successful vascularisation of the gland tissue after grafting, the latter operation should be much preferable to that of injecting the juice of the gland which, in the absence of direct proof to the contrary, would seem to be merely a palliative remedy.

The family history of my patient is unimportant, with this exception, that her brother was born a deaf-mute.

The patient is 39 years of age, and at the time of the first onset of her present symptoms she was 36 years old. She came under my care first in May 1890. She was then labouring under melancholia, with a distinct tendency to stupor. Her manner was listless and apathetic, and she could with difficulty be roused from her lethargy. She refused food, and had to be forcibly fed. Her pupils were equal, and reacted sluggishly to light and accommodation, but the tendon reflexes, on the other hand, were quick and exaggerated. Her temperature in the axilla was sub-normal, and her extremities were blue, cold, and swollen. Speech was thick, drawling, and deliberate. Movement and co-ordination were slow and clumsy. She gradually recovered without manifesting any symptoms worthy of note, and was discharged from the asylum within three months of admission.

She was again admitted on the 22nd August 1891, having been transferred from the Edinburgh Royal Asylum, where she was a patient for ten days. She manifested the same mental symptoms —melancholia with stupor, and in addition the following nervous symptoms:—

1. Delusions of fear. She used to lie awake all night in terror of some impending calamity.
2. Vaso-motor disturbance. Her extremities (hands, feet, tip of nose, lobes of ears) were cold, swollen, blue.
3. Lethargy, with a want of spontaneity and interest in her surroundings.
4. Refusal of food.
5. Clumsy, slow movements.
6. Exaggerated tendon reflex.
7. Well-marked vertical headache.

In addition, she presented the following symptoms of myxœdema:—

1. Well-marked supra-clavicular swelling and filling up of the triangles of the neck.
2. Enlargement of the tongue, which was soft, flabby, and indented with the mark of the teeth.
3. Waxy appearance of the face, with the characteristic flush on the cheek.
4. Mal-nutrition of the skin and its appendages—hair, nails, etc. The hands presented the usual spade-like appearance.
5. Anæmia. This symptom was a prominent one, and the ocular conjunctivæ had the appearance of parchment.
6. Menorrhagia. She menstruated once a fortnight, and was ill for a week at a time, thus menstruating for two whole weeks out of four.
7. The quantity of urine was considerably diminished.
8. The temperature in the axilla was subnormal.

Two months after admission the mental and physical condition of the patient not having improved, but, on the contrary, appearing to be worse, I resolved to perform the operation of grafting a portion of the thyroid gland of a sheep, after the suggestion of Mr Horsley. The patient was accordingly placed in bed for a week previously, so as to be more closely observed. She was kept under the most favourable conditions as regards warmth and diet, and accurate observations were made as to her condition. During the seven days prior to operation the average daily temperature in the axilla was 97°·2, and the average daily amount of urine passed was 29 ounces. The urine contained no sugar and no albumen.

On the 22nd of October last the following operative procedure was undertaken:—

The right lobe of a sheep's thyroid was taken from a sheep then being slaughtered at the Asylum farm. The utmost antiseptic precautions possible were observed in removing the gland, which after the removal was washed in a warm weak solution of perchloride of mercury. The gland, which was removed by my assistant, was carefully protected in transit from the farm to the Asylum in a warmed glass jar. In the meantime I had the patient anæsthetized, and both infra-mammary regions were carefully washed and disinfected. The lobe of the thyroid was divided transversely into two equal parts, and each half was then split longitudinally. Two half-curved incisions were made in the infra-mammary region of the patient through skin and subcutaneous fat. A portion of the excessive fat was removed, and a piece of gland 1½ inch long was placed in each wound in such a way that the cut surfaces of the split gland were in contact with the raw surfaces of the flaps of the wounds. The wounds were then closed and dressed in the usual manner. The wounds did not heal by first intention, and there was considerable suppuration afterwards. If I might presume to suggest some points in regard to the surgery of the operation, I would say—

1. That the method of slaughtering sheep usually employed makes it extremely difficult to remove the gland with ordinary cleanliness, to say nothing of absolute asepsis.

2. That bleeding the animal to death necessarily depletes the vessels of the gland itself to such an extent as to make it doubtful whether vascular connexions can ever successfully take place in the human body.

3. On account of the redundancy of fatty tissue in the infra-mammary region, I do not consider it a suitable part of the body for grafting tissue like the thyroid gland. I think a more vascular, more muscular locality should be selected.

The results of the operation were as follows:—

1. Within twelve hours there was such a marked mental improvement in the patient as to be noticeable by every person who came into contact with her. She became talkative, cheerful, answered questions readily, and the mental reflex, which was

formerly so slow, became altered and quickened. Her intelligence and spontaneity markedly increased. Her speech, however, remained slow and drawling.

2. The average daily temperature for seven days after operation was 99°·2, and for nineteen days afterwards 98°·9.

3. The average daily quantity of urine passed for nineteen days subsequent to the operation was 41 ounces.

4. The fear at night, the melancholia, and delusions disappeared on the day following the operation, and have not since recurred.

5. The vertical headache more or less persistent for three years has not since been felt.

6. The anæmic condition has been removed.

7. The skin is now soft and smooth; and the hair is not so dry.

8. The quantity of urine passed for the twenty-four hours ending on the 28th day of February was 52 ounces.

9. Menstruation, which had for three years previously been irregular in the manner described, is now of monthly occurrence, and lasts only three days.

In conclusion, I do not claim that the operation has removed the myxœdematous condition, but it has relieved the symptoms, which, with the exception of the melancholia and stupor, have all been more or less constant for three years. Under favourable conditions, I see no reason why the relief should not continue. These favourable conditions are:—

1. Warmth, upon which Dr Byrom Bramwell insists in his very able and lucid article on Myxœdema in his *Atlas of Clinical Medicine.*

2. Farinaceous dietary, which I infer from Mr Victor Horsley's recent researches, as published in two papers in the *British Medical Journal* this year.

3. Avoidance of worry and over-work, which most authorities are agreed in recognising as a causative agency.

4. Perhaps massage over the gland, which Professor Grainger Stewart and Dr John Thomson have used with success in one case, might with advantage be practised.

Finally, I would remark with reference to the sudden mental and physical change following the operation, that I entirely agree with Dr Murray and Mr Fenwick in the opinion, expressed by them in the *British Medical Journal* of 10th October 1891, that the sudden change could not be due to the engrafted thyroid gland becoming functional, but to the absorption into the system of its special secretion.

# VI.—A SERIES OF THIRTEEN CASES OF ALLEGED MATERNAL IMPRESSION.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.SE., Lecturer on Diseases of Infancy and Childhood, Minto House, and on Midwifery and Gynæcology, Medical College for Women, Edinburgh; Secretary to the Edinburgh Obstetrical Society.

(*Read before the Edinburgh Obstetrical Society*, 13*th January* 1892.)

During last winter I ventured to lay before this Society the records of some cases in which a maternal impression was the alleged cause of a fœtal defect or malformation, and I endeavoured to point out what seemed to me to be the rational way of studying this subject. I believed then, and I believe now, that we are not concerned at present with the questions, How are maternal impressions effective? or, How can their action be physiologically and reasonably explained? but rather with the preliminary inquiry whether, in conjunction with certain definite circumstances, certain clearly marked phenomena occur so frequently and so persistently as to compel the belief that there is more than the element of chance or coincidence in their association. Do fœtal anomalies follow maternal impressions so frequently as to warrant the statement that they stand in the relationship of effect and cause? It would have been futile to have spent time in discussing the possible explanations of the phenomenon of atavism in heredity before it was proven that this curious method of the transmission of diseases or peculiarities really existed; but now that atavism is an accepted fact, biologists and physiologists are rightly busying themselves with the inquiry into its meaning and causes. When it has been demonstrated that maternal impressions occur so frequently as the forerunners of fœtal bodily or mental defects as to warrant the assertion that the former are potent in producing the latter, then, and only then, it will be wise to adduce theories to explain such a relationship.

In the above-mentioned paper it was also pointed out that each alleged case of maternal impression must be most carefully scrutinized, and that in every instance certain facts must be ascertained. Seven questions were stated which were considered as of vital importance. These were—(1.) What was the age of the pregnancy when the impression occurred? (2.) What was the character of the impression? (3.) Was the object causing the impression similar to the defect produced? (4.) What was the channel or channels through which the impression was received? (5.) Was the mother conscious of the impression, and did she anticipate a defect in her child? (6.) What was the duration and strength of the impression? and (7.) Was there any evidence that the defect might have been hereditary?

Since the publication of my paper (*Edinburgh Medical Journal*, January 1891), I have received from medical friends records of cases observed by them in which all the above-named questions were thoroughly investigated. To these observers I now tender my thanks for the time and care which they have expended upon the inquiries they have made for me.

I shall narrate the cases in the order in which they were received, and shall thereafter give a summary of the results obtained from their study.

Case I.—Mrs M., a patient under the care of Dr Arthur Wilson, gave the following account of the circumstances which she believes led to the production of a peculiar mark on her child's chest. In October 1883, when she was 20 years of age, and had borne one healthy child, she was at work in the hold of a vessel, and during the meal-hour a fellow-worker threw an apple at her, which struck her on the left side between the waist and the breast. At the time when this happened she believed herself to be about one month pregnant, as she had seen nothing during October, and had always been regular previously, save during her first pregnancy. Subsequent events showed that her calculation was correct. At the time when she received the blow she did not experience any feeling of fear, anger, or horror; the circumstance did not impress her much at all, and she did not anticipate that any harm would result to the child. On July 2nd, 1884, she gave birth to a full-time male child, on whose chest there was a peculiar mark, similar in size to the apple which was thrown at the patient, but rather paler in colour. She then remembered the above-mentioned circumstance, and connected the impression and the mark together as cause and effect. Dr Wilson has described the mark as an oval patch 2½ inches long and 2 inches broad, situated above and to the inner side of the left nipple, which is included in its lower and outer margin, and of a bluish-brown mottled appearance, slightly darker in colour at the circumference than at the centre. Over the patch coursed several dilated veins lying immediately below the skin. It was not a nævus in the usual acceptation of the term, but rather a hyperæmic patch with a blush which disappeared on pressure, leaving a general mottling. The mother is now 28 years of age, and has borne four children, one girl and three boys, all of whom, save the boy above mentioned, who was her second child, are free from any mark or bodily defect. The boy is now 7 years old, and the mark on his chest has not increased or decreased in size, although from the relatively small size of the chest at the time of birth it then appeared larger. There is no other mark on his body. Such were the statements which Dr Wilson elicited at his first interview; but on a second occasion, when he carefully cross-examined the woman, he found that in certain points she contradicted herself,—for instance, at the first interview she said the apple hit her on the left side, but at the second she affirmed that it was on the right side. There was no history of such marks being hereditary in the woman's antecedents, but there was a curious fact in her own history, which will be mentioned immediately.

I do not consider that this case affords strong evidence in support of the potency of a maternal impression; but it is interesting as an example of perhaps the commonest variety of such histories.

Case II.—The same patient, Mrs M., exhibited in her own person an abnormality which had been ascribed by her mother to a maternal impression which she (the mother) had received when pregnant. The anomaly consisted in the presence of a patch of gray hair on the left temple, which had existed ever since the first growth of hair took place. Her mother said that when pregnant she was one day in company with her husband and her sister. The husband said he would give his wife's sister a penny for every gray hair she pulled out of his head; she pulled out several and threw them at her sister, hitting her (she thinks) on the head. The infant born soon afterwards developed the gray patch which is mentioned above, and which still exists.

The above case is not of much value for the purpose we have in view, for it has not been verified and scrutinized; but I have narrated it to show that in this family maternal impressions were evidently believed in, and that anything suggesting such a circumstance would not be likely to be overlooked.

Case III.—It is to Dr W. Iverach Robertson that I am indebted for the history of the third case of supposed maternal impression now to be narrated. His patient was pregnant for the seventh time, and had arrived at the second month of gestation when she was very much impressed by a circumstance told her by a friend. This friend said that a child had been born in her house about whose sex there was some doubt. So far as Dr Robertson can make out, it was a case of absence of the penis. The patient had never heard of such a thing before; she was much impressed by the "strangeness" of the story, and "wondered" if such a condition had ever been heard of previously. She told Dr Robertson that she had heard of other wonderful things, but that they had not kept so much in her mind as this; for several nights she could not get to sleep through thinking about it. She most distinctly states that she did not anticipate any defect in her own child. She never saw the deformed infant, and therefore received the impression entirely through hearing of the circumstance. She was delivered at the full time of an infant, the subject of ectopia vesicæ and epispadias. All her previous children, six in number, had been healthy, and had not been deformed in any way, and there was no family history of extroversion of the bladder or of any other malformation. It is impossible in this case to say whether or not the object causing the impression closely resembled the defect produced; but there must have been some similarity between the two conditions, for epispadias at first sight certainly suggests absence of the penis.

CASE IV.—Dr Robertson has also sent me the notes of a case which occurred in his father's (Dr W. B. Robertson's) practice, and in which he attributed the idiocy of the child to a mental shock which the mother received during her pregnancy. The patient, 33 years of age, a pluripara, went down to the country when she was about four or five months pregnant, and not feeling well went to a doctor, who listened to her heart, and told her that the cause of her trouble was heart disease. This statement frightened her very much, and she returned home at once and saw Dr Robertson, who told her that he had known the condition of her heart for several years, but had not informed her, because he did not believe it would shorten her days, and because he did not wish to frighten her. She had a mitral systolic bruit. She was so much alarmed and frightened that Dr Robertson took her to a noted London physician, who tried to comfort her in the same way that her own doctor had done. Her child (a female) was born at the full term, but as it grew up it became evident that it was imbecile. The child was, when five years old, placed in a home for such cases, and the medical man there asked whether the mother had had any great shock when four or five months pregnant. There was no family history of insanity, and the mother had had several children before this, and has had two since, all without any mental defect. The labour, it may also be said, was easy; no instruments were used, and there was no undue pressure upon the head.

CASE V.—Dr Felkin has kindly supplied me with the clinical notes of this and of several other interesting cases. The patient, Mrs A., was 22 years of age, and had arrived at the seventh month of her first pregnancy, when one evening on which she was alone in the house a beggar came to the door and was importunate and abusive. The patient tried to close the door, and managed to get the chain on, but in doing so slipt and fell. The beggar caught hold of her right ankle and pulled her with considerable force partly through the doorway, spraining her ankle so badly that she was unable to walk for three weeks afterwards. After a normal labour at the full time a child was born whose right foot was deformed (talipes varus). The mother did not anticipate any defect, and has since (four years afterwards) given birth to a perfectly normal child. Club-foot was not hereditary either on the maternal or paternal side in this case.

CASE VI.—The younger sister of the above-named patient, Mrs B., was 21 years of age, and had arrived at the seventh month of her first pregnancy when the following incident occurred:—One evening when she was in evening dress, her husband, whilst opening a soda-water bottle, allowed the cork to escape him, and it struck his wife violently on the left arm, on the flexor aspect just below the elbow. The incident gave her a great shock, and a mark was caused on the arm, there being a slight wound due to the tin plate on the top of the cork. She was much impressed by the circumstance, and she on several occasions said to her husband in a half-jocular fashion that she wondered if her child would suffer as her sister's had done. Her infant, a male, was born at the full time, after a lingering labour in which the head presented, and upon his left arm was a well-marked circular scar, slightly vascular and depressed, which still exists. There was no prolapse of the arm during the labour. The patient has had three children since, all perfectly normal. She and her sister were both highly nervous and impressionable, and a third sister was very hysterical.

CASE VII.—Mrs H. was 27 years of age when she was delivered of her first child by means of forceps (Oct. 16th, 1881). As soon as the infant (a boy) was born, the mother asked if it was all right. The medical man, thinking she referred to its life, said, Yes; but she persistently asked if the child was all right. As soon as leisure permitted the infant was carefully examined, and it was then discovered that there was a curious mark upon his chest, which covered the whole of the right and part of the left mammary region. The skin within this area was strikingly white, rigid, and slightly puckered. When the child was shown to the mother, she exposed her own chest, and it was seen that she had lost the whole of the right breast and the lower half of the left. She explained that when 18 years of age she had received a severe burn on the chest, which had left the parts in the condition seen. She further declared that she had always expected and feared that her child would be deformed in the same way, for a friend had given birth to a child with a deformed hand after witnessing during her pregnancy an accident in which a man's hand had been badly crushed. Mrs H.'s child was otherwise perfectly healthy and normal. This case is interesting, for the patient had, during her pregnancy, the firm belief that her infant would be deformed, although the accident to herself had taken place nine years previously.

CASE VIII.—E. G., a ii. para, 28 years of age, was confined on 11th August 1881 of a female infant. The labour was a lingering one on account of faulty uterine action and a rigid os uteri, and during the confinement the patient was exceedingly anxious to know whether or not the child was alive. She had not felt any movements for two or three weeks, and about a month previous to her confinement she had seen a drowned man fished out of a canal. The child presented by the breech, and when born it was found to be dead, completely black in appearance, and with the skin peeling off in many places. The membranes had not ruptured before labour set in. Dr Felkin tells me that it was quite different in appearance from an ordinary macerated dead fœtus.

Case IX.—E. R., a primipara of 17½ years of age, was delivered on 5th January 1878 of an apparently normal male child. At the time of the birth the mother was very anxious to know whether the child could see, because her husband was and always had been blind, and she had confidently expected her child to be born blind. At the time of the birth it was not possible to say whether the child was blind, but soon afterwards such was found to be the case, and he has remained blind up to the present time. The child was otherwise normal. The only anomaly in the labour was the presence of a rigid perineum.

Case X.—E. L., a primipara of 19 years of age, was on 4th May 1876 confined of a male infant. The labour was normal. The patient asked anxiously if there was anything the matter with the child's right leg. There was. A reddish scar was visible under the right knee. The mother then stated that six weeks before the birth of this child she had been bitten on the right leg by a dog. As the animal was supposed to be mad the bite had been cauterized, had then suppurated, and had only been healed for about ten days. In addition to having the wound cauterized, she had undergone a course of faith-healing in order to prevent the occurrence of hydrophobia, and to save the child from suffering. This may have intensified the impression which the accident made.

Case XI.—Last July Dr Wm. Paterson put into my hands for dissection a specimen of marked exomphalos and anencephalus. The mother, a primipara, 21 years of age, had when about three months pregnant witnessed a child narrowly escape being run over in the street. Her impression was that the child had been run over and greatly wounded and crushed. During the remaining months of her pregnancy she was in a very nervous and hysterical state. The malformed fœtus was born between the seventh and eighth months of gestation, and there was an enormous excess of liquor amnii. The father of the infant was a tall, well-built, and healthy-looking fellow. The family history of the mother was good; no evidence of any previous abnormality (hare-lip, spina bifida, etc.) could be elicited even on very close questioning. The same result was arrived at when the paternal family history was inquired into.

Case XII.—This case and that which follows (No. XIII.) are illustrative of a group of circumstances which are more readily accepted by the scientific mind than are any of the above-recorded clinical histories.

M. A. A., a iv. para of 22 years of age, was when seven months pregnant confined of a dead female fœtus (November 26, 1876). It was a breech presentation, and when first seen by Dr Felkin one foot was in the vagina. The mother had expected that it would be born dead, and gave as her reason the fact that she had been frightened at a fire which had occurred in her house a fortnight before. She had had some difficulty in escaping from the top flat of the house. The child did not die in the labour, but had evidently been dead for some days.

Case XIII.—S. I., a i. para of 26 years of age, when a little over five months pregnant had attended a friend in her confinement. The friend died of post-partum hæmorrhage, and three weeks afterwards (*i.e.*, when six months pregnant) S. I. was delivered of a fœtus (February 20, 1877). She had had a considerable hæmorrhage on two occasions before labour set in, and there was after the delivery of the fœtus hour-glass contraction of the uterus, and the placenta, which was retained, had to be peeled off. She had been much alarmed at her friend's confinement, but had not anticipated any danger in her own labour.

In none of the cases save No. IX. was there any evidence forthcoming in favour of the hereditary nature of the defects. The accompanying table expresses in a condensed form the chief points in the preceding thirteen cases. Cases XII. and XIII. differ from the others in the circumstance that there was no defect or peculiarity in the fœtus, and they therefore do not come under the category of cases usually described as maternal impressions. I have, however, included them in the list, as the one is an example of death of the fœtus in utero due, in all probability, to a great physical and mental shock, and as the other is a curious instance of the association of similar obstetric experiences in two women, of whom the latter was present at the confinement of the former.

Leaving these two cases out of account, we may now look at the results of the analysis of the ten instances in which defect in the child followed a recorded maternal impression. The age of the mother at the time when the impression occurred varied from $17\frac{1}{2}$ years to 33; and seven women out of the eleven were primiparous; there were two ii. para, one vii. para, and one "pluripara." With regard to the sex of the infant, in eight cases it was a male, and in three a female. The age of the pregnancy when the impression occurred varied much: in one case it was during the first month, in one during the second, in one during the third, in one between the fourth and fifth, in two during the seventh, in two during the eighth, and in two the impression may be said to have existed throughout the whole course of gestation. As a rule, the earlier in pregnancy the impression occurred the more serious and deep-seated the fœtal defect, but Case I. formed an exception to this rule.

| No. | Age of Patient. | Number of Pregnancy. | Sex of Infant. | Character of Impression. | Age of Pregnancy. | Was Defect Similar to Impression? | Channel or Channels through which received. | Was there Consciousness of Impression? | Was Defect anticipated? | What was Length and Strength of Impression? | Was there any Suspicion of Heredity? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 years | 2nd | Male. | Physical. | 1st month. | Yes. | Touch. | No. | No. | Transient and slight. | No. |
| 2 | — | 1st | Female. | Physical. | — | Yes. | Sight. | No. | No. | Transient and slight. | No. |
| 3 | 33 „ | 7th | Male. | Mental (wonder). | 2nd month. | Yes. | Hearing. | Yes. | No. | Protracted and well marked. | No. |
| 4 | 34 „ | Pluripara. | Female. | Mental (fear, anxiety). | 4-5 month. | Somewhat, the impression was mental, so was defect. | Hearing. | Yes. | No. | Protracted and well marked. | No. |
| 5 | 22 „ | 1st | Male. | Physical and mental (fear). | 7th month. | Yes. | Touch and sight. | Yes. | No. | Lasted three weeks, well marked. | No. |
| 6 | 21 „ | 1st | Male. | Physical and mental (fear). | 7th month. | Yes. | Touch and sight. | Yes. | Yes. | Protracted and fairly well marked. | No. |
| 7 | 27 „ | 1st | Male. | Physical and mental (fear). | Whole period. | Yes. | Sight. | Yes. | Yes. | Protracted and well marked. | No. |
| 8 | 28 „ | 2nd | Female. | Mental (fear). | 8th month. | Yes. | Sight. | Yes. | Yes. | Short, but well marked. | No. |
| 9 | 17½ „ | 1st | Male. | Mental (fear). | Whole period. | Yes. | Sight. | Yes. | Yes. | Prolonged and well marked. | Yes. |
| 10 | 19 „ | 1st | Male. | Physical and mental (fear). | 8th month. | Yes. | Touch and sight. | Yes. | Yes. | Lasted six weeks, well marked. | No. |
| 11 | 21 „ | 1st | Male. | Mental (fear). | 3rd month. | Similar to idea produced by impressions. | Sight. | Yes. | No. | Prolonged and strong. | No. |
| 12 | 22 „ | 4th | — | Mental (terror). | 6th month. | No. | Probably all the sensory channels. | Yes. | Yes. | Short, but well marked. | — |
| 13 | 26 „ | 1st | — | Mental (alarm). | 5th month. | Yes. | Sight. | Yes. | No. | Short and fairly well marked. | — |

In two cases out of the eleven the impression seems to have been purely physical, and in three it was purely mental; in the remaining six cases it was both mental and physical. The mental impression was in most cases one of fear, or terror, or anxiety; but in one instance it was a feeling of wonder. In all the cases save two the defect was strikingly similar to the object alleged to have been its cause. In one of the exceptional cases the mother was during her pregnancy in an almost melancholic condition, and the infant born was an idiot; and in the other instance (Case XI.) the defect was similar to the appearance which the woman feared had been produced by the accident she had witnessed. The two chief channels through which the impression was conveyed seem to have been touch and sight, but in two cases it was through hearing. There was consciousness of the impression in all the cases save the first two. In five cases a defect in the child was anticipated and feared by the mother, and in six it was not. In two cases the impression was transient and slight, in six it was prolonged and well marked, and in three it was of comparatively short duration, but was strongly marked. In the two cases in which it was slight and transient the defect also was of a slight character; but in those in which it was strong and prolonged the fœtal condition was found to be a well-marked one.

My correspondents inquired carefully into the question of heredity, but in only one out of the ten cases was there any evidence suggesting that the defect had been transmitted in this way (Case IX.) It is of great importance that the possibility of the hereditary nature of the fœtal defect be closely investigated in every case of alleged maternal impression. I have read over carefully more than thirty cases which have been recorded in various medical journals during the last twelve months, and in only one or two of them have I found any indication that the subject of heredity was inquired into at all. The absence of information upon this matter is a grave defect in the clinical history of a case of supposed maternal impression.

I must now record the cases of fœtal defect which have come under my notice during the last year in which the history of a maternal influence was looked for and not found. I have during the year met with five cases of grave fœtal anomaly, of which I was able to obtain complete clinical notes, and in none of them was there the faintest indication that a maternal impression was the cause. In a sixth case (No. 11) already recorded, the history of an impression was found.

CASE I.—A premature, still-born male child was handed over to me for dissection by Dr T. B. Darling about twelve months ago. It was a markedly malformed infant, for the penis and anus were both imperforate, the testicles had not descended into the scrotum, and there was double club-hand and club-foot. Dr Darling kindly undertook to interrogate the mother concerning any possible cause which might serve to account for the deformities. There was absolutely no suspicion of any such cause.

Case II.—In the case of an anencephalic fœtus which I received from Dr Menzies, there was also no history of any shock, fright, or other maternal cause during pregnancy which could be looked upon as the cause of a possible impression.

Case III.—In August Dr Ballantyne of Dalkeith sent me a greatly deformed fœtus. It showed a marked condition of anencephalus and exomphalos, along with other defects. The history of the patient during pregnancy was carefully inquired into and no trace of a maternal impression found.

Case IV.—In the early part of the year Dr Darling kindly asked me to see with him a new-born infant which exhibited a so-called intra-uterine amputation of the right hand. In this case also no evidence of an impression was forthcoming.

Case V.—Dr Freeland of Broxburn recently gave me, for purposes of dissection, a fœtus the subject of general dropsy. The clinical history of the mother, although interesting in many ways, gave no suggestion of the influence of any maternal impression.

Such have been the results of a year's investigation of this subject; and whilst it is clear that in some cases the occurrences seem to be altogether too curiously suggestive to be regarded simply as coincidences, yet it is also evident that the close inquiry into all the circumstances of the alleged impression often elicits weak points in the chain of reasoning which connects together the defect and impression as effect and cause. The subject must still be regarded as *sub judice*.

## VII.—INTUBATION OF THE LARYNX IN LARYNGEAL DIPHTHERIA, WITH NOTES OF FIFTEEN CASES.

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(*Concluded from page* 927.)

### 2. Technique and Instrumentation.

Tubage of the larynx appears to have been first accidentally demonstrated in 1801 by Desault,[1] but intubation, as now practised for the relief of croup and diphtheria, was first employed, though merely experimentally, by Bouchut of Paris, in 1857. In

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[1] For a full history of intubation and tracheotomy see paper on "Intubation or Tracheotomy," by Dr Max. J. Stern, *Transactions of the Ninth International Medical Congress* (Section of Laryngology), 1890.

1880 O'Dwyer began his course of experimentation, and in the course of the next few years elaborated the method and devised the instruments which are now known by his name.

These instruments are ingeniously adapted for the purpose primarily in view,—the locating, *per vias naturales*, of a tube in the larynx. To the casual observer the tubes seem of small calibre, and hardly efficient for the maintenance of effective respiration. But, as pointed out by O'Dwyer,[1] the smallness in calibre of the tube renders expectoration and coughing more easy, and he recommends[2] that small tubes be employed more particularly in those cases where there is a suspicion of membranous masses in the trachea, as they are more likely to be expelled by coughing. Shorter tubes with a much wider calibre have, however, been more recently used by O'Dwyer.[3] I have repeatedly seen that respiration can be very effectually performed by the medium of the smaller tubes. The obturator with which each tube is fitted requires frequent careful examination, as a case has been recorded by Eichberg[4] in which it broke and stuck in the tube, and rendered tracheotomy necessary.

The instrumentation connected with removal of the tube seems in urgent need of modification. It is no easy matter to at once insert the extractor into the upper orifice of the tube, especially in the case of very young children, and any delay or bungling increases the already great exhaustion, and may even lead to a fatal result (Case X.) True, removal may be facilitated by pressing upon the exterior of the larynx in an upward direction with the left hand, whilst the right forefinger is used to remove the tube, or even by inverting the child, as has frequently been successfully done in the cases of foreign bodies in the larynx. O'Dwyer[5] acknowledges that the larynx may be wounded in the removal of the tube, by failing to get the extractor into the orifice, and pushing it down by its outer side, and he has modified the heads of the larger tubes which he has more recently introduced, so that they can be withdrawn with the finger-nail.[6] I have not made trial of these modified tubes. Around the neck of the ordinary tubes I have had applied an india-rubber band or collar, with an erect projection anteriorly resembling an artificial epiglottis. This has not been done with the view of aiding the epiglottis in its functions, as proposed and carried out by Waxham,[7] but with the object of allowing the tube to be more easily withdrawn. With his left forefinger the surgeon feels the tip of the artificial epiglottis and guides the slightly curved forceps—which should open not laterally, but antero-posteriorly—introduced with the other hand; the rubber epiglottis is then easily seized and the tube withdrawn. The manipulation is easy, and is unaccompanied by any of the risks which undoubtedly accompany the use of O'Dwyer's ordinary extractor.

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[1] *New York Medical Journal*, No. xvii., 26.

[2] *New York Medical Record*, 22nd October 1887.

[3] *Ibid.*, 21st December 1889.

[4] *Cincinnati Lancet Clinic*, 15th November 1890.

[5] *New York Medical Record*, 22nd October 1887.

[6] *Ibid.*, 5th October 1889.

[7] *Medical Age*, Detroit, 10th April 1888.

In case of mishap during or immediately after intubation the operator ought always to be prepared to perform tracheotomy, and, as recommended by Waxham,[1] he ought to be provided with a pair of long tracheal (or laryngeal) forceps, which might prove useful in assisting to clear the windpipe.

Though not an absolutely essential preliminary of the operation, the question of gagging in intubation is one which merits some consideration. I believe that on some occasions I have witnessed severe dyspnœa distinctly augmented by the introduction and opening of the gag, and I observe that the reviewer of a recent work on *Intubation of the Larynx*[2] affirms, "that occasionally a young child dies outright in consequence of the gagging, and that, short of dying, the dyspnœa in many is seriously increased by the gag." The gag ought to be used with great care, and in cases of severe dyspnœa it may be advisable to dispense altogether with its use, and intubate under general anæsthesia.

### 3. ADJUVANTS.

The lull which ensues after a tube has been properly placed in the larynx, and the ease in breathing which characterizes it, are unfortunately frequently of a merely temporary and illusory nature. The little patient not unusually progresses favourably during the first twenty-four hours, and it is only after the expiry of that period, or even as late as the sixth day (Case IV.), that exhaustion begins to tell, fresh membrane forms and extends downwards, and pulmonary and other complications develop. Consequently it is as much upon the after-treatment and management of these cases as on the successful performance of intubation that the final issue depends, and unless this be borne in mind and put in practice, neither intubation nor any other operation which the wit of the surgeon can devise will be of much avail in diphtheria. Waxham,[3] who has had a very large experience of intubation, attributes his increasingly favourable results to the adoption of better systems of after-treatment, especially of nourishment. This after-treatment may be considered from the dietetic and the medicinal points of view.

*Dietetic.*—The difficulty in feeding the patient is often advanced as one of the objections to intubation. There can be no doubt that the presence of a metallic tube must necessarily impede the movements necessary to the perfect closure of the larynx during deglutition. Various attempts have been made to overcome this difficulty, as by Mount Bleyer,[1] who has introduced what he calls a self-closing intubation tube made partly of hard and partly of soft rubber. The head and neck being soft permit of compression, and consequently of closure of the tube being effectively carried out during the deglutitory act. But with a little attention to the method of feeding it will be found that it can be effectively carried out with the metallic tube in position. We are sometimes told that semi-fluids and not fluids ought to be given; but this cannot be carried out in practice, especially in the case of young, feverish, and thirsty children, who insist upon being permitted to drink. The position best adapted for swallowing is that described by Casselberry,[2] "by position, head downwards, on an inclined plane. An angle of inclination of 20° is suitable for most cases." Some authorities recommend a position with even a greater angle of inclination, but the objection to this is an occasional tendency for the tube to slip out of the larynx. I can confirm the value of allowing a slight declination of the head, especially if the patient at the same time is induced to take fluids through a tube, or through the spout of a drinking-cup. Care should be taken to prevent the patient taking inordinate quantities of fluid. In five cases Mount Bleyer[3] saw death result from mechanical obstruction of the heart caused by distension of the stomach from fluids.

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[1] *Philadelphia Medical News*, 1st January 1887.

[2] "Intubation of the Larynx," by James B. Ball, M.D., *British Medical Journal*, 18th July 1891.

[3] *New York Medical Record*, 29th June 1889.

Some authorities write of "aspiration pneumonia" as being a not infrequent result of attempts at swallowing with the tube in position. Denison[4] affirms that in nine out of eighteen fatal cases in his practice death ensued from this cause, whilst Rosenberg,[5] two years afterwards, says that pneumonia from swallowing has not yet been observed. Fletcher Ingals[6] believes that the great percentage of deaths is due to the entrance into the lungs of foreign substances (pneumonia). As, however, the great majority of writers, mainly American, on this subject make no mention of the occurrence of this form of pneumonia, I conclude that it cannot be so common as the above-mentioned authors declare. I am not conscious of having witnessed its occurrence. To minimize the risk of its occurrence feeding by the stomach-tube is recommended by some writers.

The quality and quantity of food to be administered after intubation is rather a general than a special point, and must be determined by each practitioner for himself. The great importance of attending carefully to nourishment cannot be over-estimated.

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[1] *Journal of the Respiratory Organs*, August 1889.

[2] *Journal of the American Medical Association*, 24th August 1889.
*Chicago Medical Journal and Examiner*, October 1888.

[3] *Transactions of the Tenth International Congress*, 1890 (Reprint).

[4] *Transactions of the American Medical Association*, June 1889.

[5] *Berliner med. Gesellschaft*, 11th and 12th March 1891.

[6] *Journal of the American Medical Association*, 10th July 1886.

Of course, if the practitioner thinks it desirable, there is no reason why supplemental rectal alimentation should not be had recourse to, and, as a matter of fact, this is frequently done.

*Medicinal.*—In considering the medicinal after-treatment of intubation cases it is not my intention to discuss the treatment of diphtheria, or to even enumerate the many diverse remedies which from time to time have been advanced for its cure—remedies which range from salts of gold to tobacco juice.[1] The apparent success which attends the use of each remedy would be wonderful, did we not bear in mind, as naïvely remarked by Hildebrandt,[2] that there are forms of diphtheria which yield to every remedy, and others in which every remedy fails. For reasons which need not now be discussed, the worst forms of diphtheria are those in which the larynx is affected, *i.e.*, precisely those in which we are called upon to intubate, and I agree with Dillon Brown[3] in the conclusions he arrived at after an experience of 200 cases, that those in which membrane is absent from the pharynx or posterior nares are more fatal than those in which membrane is present in those localities.

In the medicinal treatment of post-intubation cases, one of the most important points is that of stimulation. Should alcohol be administered, and if so, how? Different opinions have been expressed on this point. Jacobi of New York, whose experience of diphtheria in children has been very large, says,[4] "Alcoholic stimulants ought to be given early and freely. A few ounces daily may suffice, but the author has often seen ten ounces daily of brandy or whisky save children who had been doing badly with three or four. There is no danger of intoxication from them in such septic diseases as diphtheria." These views were expressed with reference to the general treatment of the disease, but I believe they are also applicable to those special cases in whom intubation has been performed.

The frequent subsequent collapse of patients who have borne the operation well, and in whom respiration is effectively performed until the very end, indicates that active medical treatment is urgently called for. Heart failure, which may develop with or without warning, is probably the affection which most clamantly demands attention. "Cardiac stimulants," says Jacobi,[5] "are indicated, and their administration ought not to be postponed until feebleness and collapse have set in." Digitalis, preferably in combination with iron, ought to be frequently administered in doses proportionate to the age of the child, and all depressants, such as emetics, and drugs such as antipyrin, ought to be avoided. In several of the cases recorded in this paper mercurial inunction was practised, but without, so far as could be seen, affecting the progress of the case.[1]

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[1] *Semaine méd.*, 10th December 1890. Schwitzer recommends pencilling with extract of tobacco juice, and gargling with a decoction of tobacco leaves.

[2] *Münch. med. Wochen.*, Nos. 18, 19, and 20, 1891.

[3] *New York Medical Journal*, 9th March 1889.

[4] *British Medical Journal*, 22nd September 1888.
*Deutsche med. Zeitung*, No. 72, 1890.

[5] *Op. cit.*

The amount of purely local treatment necessary after intubation should, I think, be small. A bi-hourly spray of peroxide of hydrogen,[2] of the strength of 10 to 15 volumes mixed with two or three times its bulk of water, from its antiseptic and unirritating nature, and its freedom from inducing toxic symptoms, appears to be the local remedy which, especially in America, has met with most favour. This remedy may also be applied by irrigation, by means of a catheter, which may be passed right into the larynx. It may be here mentioned that sprays and inhalations are more efficacious when used through the nose than through the mouth, and in this manner the peroxide ought to be more particularly employed. Mercurial washes and sprays and applications of lime-water may act chemically upon the tube (Boldt and Northrup).[3]

The shutting-up of these cases in "croup-tents" in an atmosphere of steam appears a very doubtful procedure, and I regret that in several of the cases now recorded this was had recourse to. Acute laryngeal diphtheria in children is almost invariably characterized by a high temperature, *i.e.*, 102° and over, and the only results I have witnessed of this method of treatment have been augmentation of the fever and of the restlessness of the child, and an increased disinclination for food. The moistening of the throat, as already stated, can be effectually carried out by means of the peroxide of hydrogen spray or douche. I am in favour of placing such patients in cool, well-ventilated rooms, without steaming.

### Comparison with Tracheotomy.

The mortality of the two operations may be first compared. Out of 2166 cases of intubation of the larynx in croup or diphtheria, which I have collected from various sources, 32·5 per cent. recovered; similarly, out of 1730 cases of tracheotomy, 22 per cent. recovered. The difference is thus about 10 per cent. in favour of intubation.

Dillon Brown,[4] in March 1889, published a list of 2368 cases of intubation obtained from the records of 166 operators, with 27·3 per cent. of recoveries. The mortality of intubation in the practice of any one operator tends to diminish as he acquires increased experience, and, above all, recognises the necessity of paying most careful attention to the details of after-treatment. This is well shown by Waxham[1] in the following figures from his practice:—

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[1] It is right to record that O'Dwyer ascribes his increasingly favourable results partly to the use of the sublimate (*New York Medical Journal*, 14th January 1888).

[2] Peroxide of hydrogen is now kept in stock by most chemists. It is well preserved by keeping in a cool place, at a temperature not exceeding 65° F., and excluding the light. Metals should not be used in its application.

[3] *New York Medical Record*, 12th November 1887.

[4] *Ibid.*, 9th March 1889.

| | | | | | |
|---|---|---|---|---|---|
| 1st | 100 | cases | gave | 27 | per cent. of recoveries. |
| 2nd | 100 | „ | „ | 34 | „ „ |
| 3rd | 100 | „ | „ | 42 | „ „ |
| Last | 43 | „ | „ | 41·85 | „ „ |

It is advanced in favour of intubation that it is bloodless, can be performed with great rapidity, and does not preclude the subsequent performance of tracheotomy. The first two are correct enough, the latter only partially so. If the operation of intubation miscarry, recourse may be had there and then to tracheotomy with advantage; but if this be deferred until the tube has been in position for twenty-four hours or longer, the results seem somewhat disastrous. This is hardly surprising when consideration is given to the conditions under which a deferred tracheotomy is performed, the most common being a downward extension of the membrane into the trachea and bronchi. Ganghofner[2] records 42 cases of intubation, with 21 late tracheotomies, all of whom died; and Urban[3] had 32 intubations with 18 subsequent tracheotomies, all fatal. On the other hand, Guyer[4] found that tracheotomized children who were deprived of their tube with difficulty, as frequently happens, were afterwards beneficially intubated.

It is in favour of tracheotomy that the opening in the windpipe permits of its frequent examination and cleansing. For now-a-days one hardly requires to be told that the opening in the windpipe should not be looked upon as simply permitting an entrance for the canula, but also as affording to the practitioner a means of access to the interior of the trachea for cleansing and medicative purposes, of which he should constantly avail himself.

In America, the land of its birth, and where records of hundreds of cases by individual surgeons are not uncommon, O'Dwyer's method of intubation is regarded with a considerable amount of favour. In this country, however, where it is much less frequently performed, and has hardly emerged from the experimental stage, it has not met with the same degree of acceptance, and must be considered still *sub judice.*

## ERRATUM.

(In Dr Hunter Mackenzie's paper on "Intubation of the Larynx," p. 924, line 20 from top, for "morbility" read "mortality.")

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[1] *Archives of Pediatrics*, July 1891.

[2] *Jahrbericht für Kinderheilkunde*, xxx. 3, 1889.

[3] *Deutsch. Zeitschrift für Chirurgie*, 31, 1890.

[4] *Corresp. Blat. für schweizer Aertze*, No. 13, 1889.

# Part Second.

## REVIEWS.

*Traitement des Maladies de la Peau, avec un abrégé de la symptomatologie, du diagnostie, et de l'étiologie des dermatoses.* Par le Dr L. Brocq, Médecin des hôpitaux de Paris. La partie Pharmacologique a été revue par M. L. Portes, Pharmacien in chef de l'Hôpital Saint-Louis de Paris. Deuxième édition, corrigée et augmentée. Paris: Octave Doin: 1892.

One of the chief difficulties encountered in the preparation of a treatise on diseases of the skin is the selection of a classification. Of the many which have been proposed, none can be said with truth to be entirely satisfactory. Dr Brocq has ingeniously evaded this dilemma by adopting an alphabetical arrangement. His book is thus really an encyclopædia of cutaneous diseases, and a very full and complete one it is. Though ostensibly devoted in the main to the treatment of skin diseases, its scope is far from being limited to this. The history of the complaint is in many instances related, its symptoms clearly and tersely detailed, its pathology glanced at, its etiology often minutely referred to, its diagnosis laid down, and then its most successful treatment is entered into with great fulness. There is, indeed, no work in any language which covers exactly the same ground. For its range is not narrowed to the mere description of diseased conditions and their management, but the appliances and their mode of use are elaborately described. Thus baths, gelatines, pastes, collodions, plasters, glyceroles, and ointments are more than alluded to, the methods of their preparation are indicated, and the reasons for their employment, or those which necessitate their rejection or discontinuance, are carefully described. Even what may be called somewhat erroneously "the decorative arts" of the skin are not omitted, as directions and prescriptions for hair dyes, cosmetics, and "makes up" in general are amply provided. The hygiene of the skin in health is discussed, and rules are laid down by which those "who desire to preserve a fresh, rosy, but not too highly-coloured complexion, and who wish as far as possible to retard the appearance of wrinkles," are to be guided. As some of our readers may be anxious to learn those maxims at once, we subjoin them for their edification. To attain this desirable end it is necessary, therefore,—1. That one should not expose one's self to sharp cold, to strong wind,—in particular to the wind from the sea, which burns very rapidly the uncovered parts,—or to the sun on a hot day. 2. That one should not wear clothes too heavy or too close fitting,—especially tight stays, which drive the blood to the face and hinder digestion. To avoid cold feet. 3. To pursue a dietetic regimen of severe character. 4. To maintain free action of the bowels by suitable laxatives if necessary, and to take from time to time cold enemata. 5. Not to sit up late; not to tire one's self unduly either by excess of work or excess of pleasure. 6. To avoid strong emotions, anxiety, prolonged mental strain, etc.

Were such a course possible, there can be little doubt that the advent of wrinkles would be much postponed; but there are few who can fully carry out the very admirable maxims laid down by Dr Brocq. Much the same idea has been tersely expressed in a remark by a well-known minister of the Scotch Establishment, who observed, "One can do anything if he has but a clean stomach and a clean heart." This leads us to the consideration of the dietetic regimen which Dr Brocq has alluded to. Of it Dr Brocq says,—"This question of dietetic regimen in affections of the skin is one of the most delicate, the most debated, and the least known at the present time. Certain physicians debar their patients who have the least eruption from taking any of a whole array of viands, in all cases the same; others, and the most recognised, permit them to eat whatever they like." "Foods may act in various ways on the skin. Now the effect is an immediate one, anon it is remote. A bad dietetic regimen (in all its complexity) continued for a protracted period may, *in a predisposed* individual, induce gout, and occasion in consequence in him eczematous manifestations. There is imperfect nutrition and defective elimination, causes of disease which are among those best established. There are some articles of diet which are in some instances particularly hurtful. Such are tea and coffee in cutaneous neuroses, and in all cutaneous diseases in which the nervous system plays a part; in pustular acne, old and decayed cheese, preserved meats, and fish; in acne rosacea, alcohol." Some excellent rules, too long to quote, and which cannot be summarized with advantage, are laid down as to dietetics in general.

The French language lends itself to description better, perhaps, than any other, our own scarcely excepted. Its flexibility permits delicate shades of word painting to be expressed most truthfully, and M. Brocq has availed himself of this to the full. Thus the picture drawn of acute eczema cannot be excelled. He divides it into four periods. "1. That of *vesiculation*. The tissues become the seat of an erythematous redness, varying from a clear rose to a deep red; sometimes they swell when the cellular tissue is very lax, as on the penis, scrotum, or eyelids. On this red base very minute, miliary vesicles appear, the size of a pin's point, very numerous, closely grouped, and enclosing a serosity, which is alkaline, transparent, yellowish, sticky, and which stiffens linen. 2. Period of *rupture of the vesicles*. The vesicles either rupture spontaneously—for their duration is but ephemeral—or as the result of scratching; in the last case the integument is excoriated and the secretion is sanguinolent. The eczematous surface is red, moist, secreting. The serosity dries, concretes into crusts of variable thickness, colour, and form, most commonly of a grayish-yellow, more or less adherent, which fall off and are renewed. The aspect of a patch of eczema is then quite characteristic—the margins are ill-defined, irregular, diffuse. 3. *Formation of smooth epidermis.* The secretion ceases, the crusts no longer form and disappear; there now remains a red surface, studded all over with small round points of a deeper hue, smooth, shining, varnished, covered by an epidermis which is extremely fine, transparent, and caducous. 4. Period of *successive desquamations.* This renovated epidermis soon shrivels, becomes wrinkled, cracks, separates in scales, which vary in thickness, in shape, and in size; it falls off, and is replaced by a new epidermis, which in its turn exfoliates in finer and finer flakes, in proportion as the skin recovers little by little its habitual colour. This goes on till a complete cure results." Such is an example of the mode in which the features of diseased conditions are portrayed; and it must be evident that infinite care has been exercised by one ripe in clinical experience to present an accurate delineation.

The mode adopted in detailing the treatment when this is at all of a complex nature is an ingenious, and to some extent a novel one. After the methods found useful by various authorities and by himself have been fully stated, should there be a doubt, owing to the array of formulæ presented, as to the best general plan, this is sketched in a separate paragraph, in which reference is made to the items already particularized. Thus provision is made for the less experienced, while even the adept may find some suggestion of value under many of the headings. Under acne, eczema, lupus, and tinea tonsurans such a summary is of especial importance.

In this edition some diseases of the mucous surfaces have been included, such as leucoplakia, black tongue, anomalous marginate desquamation of the tongue, glossodynia, superficial glossitis, aphthous vulvitis, etc. At the same time, the newer additions to the literature of dermatology are included, and among these, actino-mycosis, pyocyanic disease, syringomyelia, parakeratoses, and psorospermoses will be found discussed at some length and with much impartiality. On the last-named subject Brocq remarks,—"It will be most important to know if the psorosperms which are parasites of man are of several varieties, and if these varieties correspond to distinct skin diseases. Unfortunately, when scarcely hatched, the theory of psorospermoses seems threatened with death. The most recent researches tend to demonstrate that the little bodies so described are not parasites at all; and for our part we fear that the conception of psorospermoses will soon have no more than a historic interest, and be but regarded as one of the many errors which have served their turn in the advancement of science."

Brocq's work is perhaps one which, for its most advantageous perusal, needs a certain acquaintance with skin diseases; but its lucidity will commend it even to the comparative tyro. The fact that a second edition was required in eighteen months from the date of the publication of the first is proof of the cordiality with which it was received; and there can be no question of its continued success in this, its amended form. It will be found an ever fertile mine of reference by those who have it at hand.

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*The Year-Book of Treatment for* 1892. London, Paris, and Melbourne: Cassell & Company, Limited.

THIS well-known publication keeps up its reputation. Of course, tuberculin comes in for a good deal of attention, as do the numerous other specifics vaunted during the year, each being, according to its discoverer, the one and only remedy for tuberculosis. The new drugs are mentioned and their properties stated. The large number of new hypodermic methods for giving all sorts of drugs is worthy of note. Surely we are getting very impatient, and cannot wait until medicine given by the mouth has had time to act. The advances in surgery are duly chronicled, and include no end of laparotomies and other gynæcological operations. As usual, the book is most valuable as a guide and for reference.

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*The Hydriatic Treatment of Typhoid Fever, according to Brand, Tripier and Bouveret, and Vogl.* By CHR. SIHLER, M.D., Ph.D., Professor of Histology in the Medical Department of the Western Reserve University, etc. Published by Chr. Sihler, Cleveland, Ohio.

*The Treatment of Typhoid Fever, and Reports of Fifty-five Consecutive Cases with only one Death.* By JAMES BARR, M.D., Physician to the Northern Hospital, Liverpool, etc. With an Introduction by W. T. GAIRDNER, M.D., LL.D., Professor of Medicine in the University of Glasgow, etc. London: H. K. Lewis: 1892.

*Recent Modifications in our Views of Enteric Fever and its Treatment.* By M. A. BOYD, M.D., F.R.C.S.I., M.R.C.P.I. *The Dublin Journal of Medical Science,* February 1892.

THE first book on this list is chiefly remarkable for a series of extracts from other works, and for the bad spelling and worse English which are to be found in its pages.

The second is a record of a number of cases, twenty-two of them treated by continuous immersion in a tank, eleven by the wet pack, local effusions, etc., while twenty-two received symptomatic treatment.

The great objection to the tank system, namely, the unavoidable passage of the urine and fæces into the water, was partly avoided by means of a discharge-pipe fitted to a pan below the tank. The patient's buttocks rest on a circular water-pillow with a hole in the middle over the opening of the pipe, and the fæces pass into it by gravitation. The outflow from this pipe is governed by a plug or tap, and may be mixed with chloride of lime or some other antiseptic before entrance into the drains. The water in the tank was kept at from 90° to 98° Fahr., and the author states that he prefers using a stream running through the tank to still water. Pneumonia he does not regard as a deterrent. Dr Barr has combined the use of antiseptics with the tank treatment with considerable benefit.

The third paper is chiefly ætiological, but praises the strict antiseptic treatment of the disease.

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*Text-Book of the Eruptive and Continued Fevers.* By JOHN WILLIAM MOORE, B.A., M.D., M.Ch. Univ. Dubl.; Fellow and Registrar of the Royal College of Physicians of Ireland; Physician to the Meath Hospital, Dublin; Consulting Physician to the Cork Street Fever Hospital, Dublin, etc. Dublin: Fannin & Company: 1892.

THE author of a volume which aspires to be a text-book on fevers must be both a skilled clinician and a diligent student. To present such word-pictures of these diseases as will appeal to his readers, he must have personally seen, and seeing observed, numerous and varied cases. Dr Moore evidently possesses both these qualifications. That he is a diligent student is clear by the many references throughout this volume, and the numerous—the author himself apologises for their number—quotations from other works. Murchison's work on the continued fevers is, of course, laid under heavy contributions; Liebermeister is often called on to corroborate statements; and a host of others have their say second hand. The most remarkable thing about the book is its absolute freshness; everything is written up to the very last moment; all the newest micro-organisms which have been saddled with being the cause of fevers; all the latest theories, tests, and treatments are touched on, many of them necessarily very briefly. Temperature charts, which might have been more delicately drawn, illustrate most of the fevers, with percentage tables of the death-rate, and the number of cases for each of the periods of life, compiled from London Fever Hospital reports. We can confidently recommend the book, not so much as a philosophical study of fevers, as a complete compendium and guide to their symptoms and treatment, compiled by an observant physician and skilful writer.

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*Indigestion clearly Explained, Treated, and Dieted, with special Remarks on Gout, Rheumatism, and Obesity, and a Chapter on Rearing of Infants.* By THOMAS DUTTON, M.D., M.R.C.P.E., etc. London: Henry Kingston: 1892.

DR DUTTON is a wonderful man; he says he can cure consumption, and implies that every one else says that they cannot. Having thus puffed himself sufficiently in his introduction, he informs the medical profession that, as he does not care twopence for them, he is going to write a book on indigestion, which he is also able to cure, for the laity. The principal thing one gathers from a perusal of the following paper is that the author has written several other pamphlets for the use of the *οἱ πολλοι*. The next, that his physiology is somewhat rusty. We wish he would get a specimen of bile and leave it on his consulting-table for two days. At the end of that time he would have very good evidence that it is not antiseptic. We quote the following from a description of digestion in the stomach: "Then, again, the fats and oil are not acidified, and the emulsion not properly prepared for the bile. The cause may lie in the stomach being too dilated, atrophied, or its containing some disease, such as 'gastric ulcer,' 'cancer,' or 'stricture,' or the mucous membrane diseased, all of which, it can be easily understood, prevent the stomach from contracting upon its contents, and so bringing the gastric juice into contact with the undigested parts of the food, the mucous membrane not being in a proper condition to absorb the peptone, so-called, through the veins and lacteals." That is very fine, but is not so easily understood, except, perhaps, by one of the laity.

We want very much to know what a torcula cerevisiœ is.

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*A Drug is its own Antidote.* By WILLIAM SHARP, M.D., F.R.S. London: George Bell & Sons: 1892.

A GRAIN of sense in many ounces of twaddle. Dr Sharp periodically fires off these essays, of which this is the sixtieth. If the others were like unto this one, they were sorry indeed. The well-known fact that varying doses of the same drug act in different ways on the organism is laid hold of and tortured into confessing the doctrine of "Antipraxy." The law of similars of homœopathy must fall before the law of contraries of antipraxy.

Some experiments are detailed; one is very convincing. The author brought on an albuminuria, which persisted for two years, by taking a few doses of titanium; no drugs were of avail until the bright idea seized him of taking a few much smaller doses of the same drug. He therefore took one or two ten-thousandths of a grain, and recovered speedily. That is, infinitesimal doses have the power of counteracting the injurious effects of large doses taken *two years before.* The action of aconite and ipecacuanha are also instanced.

Has it never struck Dr Sharp that if you give these small doses often enough they produce the same effect as large doses—that, in fact, the later is a cumulative action? If he had given his drops of centesimal solutions immediately after the patients had taken the larger doses, we think his experiments would have gone differently. He waits, however, until the effects are passing off, and then the stimulating results of small doses appear magnified.

*The Pathology of Mediastinal Tumours, with Special Reference to Diagnosis.* By JOHN LINDSAY STEVENS, M.D., Assistant Physician and Pathologist, Glasgow Royal Infirmary, etc. London: H. K. Lewis: 1892.

THE valuable series of cases and post-mortem reports bearing on these tumours, published by Dr Stevens in the *Glasgow Medical Journal,* are here reprinted.

The author has had the opportunity of both seeing the patients before, and of examining the tumours after death, and, as he rightly says, such observations are worth much more than classification of cases reported in journals, however numerous they may be. He alludes here specially to Hobart Hare's work, dealing with 520 collected cases of mediastinal disease. The different tumours described are sarcoma, carcinoma, fibrous tumours, and specific new growths of the mediastinum, with a note on the rarer formations, such as enchondroma and teratoma. Lympho-sarcomata are the most common, and have to be carefully distinguished from Hodgkin's disease.

This is a book well worth careful study.

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*Handbook of Materia Medica, Pharmacy, and Therapeutics.* By SAMUEL D. L. POTTER, A.M., M.D., M.R.C.P. Lond.; Professor of the Theory and Practice of Medicine in the Cooper Medical College, San Francisco. Philadelphia: P. Blakiston, Son, & Co.: 1891.

WE are glad to see that this handbook has reached another edition within the space of two years. We had occasion to notice favourably the "second" edition, and we may here repeat what we said regarding it. "It is an excellent work of reference to advanced students and young practitioners." Professor Potter has brought the third edition well up to date, and we wish it a wide circulation.

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*Examination Questions in Practice of Medicine, with Answers.* Part I. General Disease. By "Utile Quod Facias." Edinburgh: E. & S. Livingstone: 1892.

THERE is not much wrong with this cram-book as far as it goes. It is suspiciously like a course of lectures which we have heard not very far removed from Teviot Place. The chief symptoms and signs of disease can well enough be put down shortly as in a book like this, but it is futile to try to sum up the treatment of constitutional diseases in three or four lines. There are one or two useful tables included.

*Pye's Surgical Handicraft.* Third Edition. Edited by T. H. R. Crowle, F.R.C.S. Bristol: John Wright & Co. London: Kegan Paul, Trench, Trübner, & Co., Limited: 1891.

A third edition seldom requires much to be said about it, and such is the case with this well-known book. The 556 pages contain 235 illustrations and much valuable information. The drawings are perhaps not very artistic, but they mostly show well enough what they are intended to teach. On the whole, the book is a useful one for conveying a knowledge of those things which dressers and nurses ought to know and understand. We have no hesitation in recommending it for this purpose.

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*A, B, C, of the Swedish System of Educational Gymnastics: A Practical Hand-Book for School Teachers and the Home.* By Hartvig Nissen. Philadelphia and London: F. A. Davis: 1891.

There is at present a decided inclination towards gymnastics in schools, which is often pushed no further than getting an apparatus erected on which the children may swing, or hang, or climb. When gymnastics are taught it is generally a travesty of military drill. This, of course, was originally designed to lead up to fighting purposes, and is much inferior as an exercise for the muscles to Ling's system, which is taught in the schools of Sweden and Norway. Our own attempts to get drill introduced into the schools of this country lead us to believe that without a teacher who has thoroughly learned the Swedish gymnastics it is difficult to commence the affair with spirit enough to make it go on. At all the larger schools in Scandinavia there is a special teacher. To any one who wishes to introduce the Swedish system of gymnastics we can recommend this book. The directions are generally easy to follow, and the woodcuts, which are the same as those in the Swedish hand-books, will help to remove any remaining difficulty of comprehension.

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*The Johns Hopkins Hospital Reports: Amœbic Dysentery.* By William T. Councilman, M.D., and Henri A. Lafleur, M.D. Baltimore: 1891.

This article is a complete account of the researches the authors have made into a disease which they consider to be distinctive in its pathological anatomy, in its etiology and clinical history, from other affections of the intestines with which it has hitherto been classed under the general name of dysentery. The result of their work is summarized as follows:—

"1. Amœbic dysentery is a form of dysentery which etiologically, clinically, and anatomically should be regarded as a distinct disease.

"2. We consider that—(*a.*) The amœba dysenteriæ has been shown to be the causative agent, from its constant presence in the stools and in the anatomical lesions, and from the inoculation experiments of Kartulis. (*b.*) Clinically the disease is characterized by the presence of amœbæ in the stools, which in addition present physical characters different from those seen in the stools of other forms of dysentery, as noted above; by a variable onset, course, and duration, of which the special features are periods of intermission alternating with exacerbations; and by a marked tendency to chronicity, with the production of a greater or less degree of anæmia. (*c.*) Anatomically the disease is characterized by the production of ulcers in the colon, which generally differ from those found in any other forms of dysentery. The ulceration is produced by infiltration of the submucous tissue and necrosis of the overlying mucous membrane, the ulcer in consequence having the undermined form. Frequently in addition to the ulcers there is infiltration of the submucous tissue without ulceration. In all of these lesions, unless complicated by the action of bacteria, there is absence of the products of purulent inflammation.

"3. Abscess of the liver, with or without involvement of the lung, is a frequent complication, much more so than in any other form of dysentery. The involvement of the lung may early follow hepatic involvement, and be detected by the occurrence of amœbæ in the sputum before there is evidence of liver abscess. These abscesses differ in their anatomical features from those produced by other causes. The chief difference is found in the absence of purulent inflammation, the abscess being caused by necrosis, softening and liquefaction of the tissue. In these liver abscesses these amœbæ are not associated with any other organisms.

"4. The disease is widely distributed, is found in most countries in Europe, in most parts of the United States, and in the tropics everywhere.

"5. This is a form of dysentery which has been frequently called tropical dysentery."

The above conclusions are based upon an analysis of fourteen cases of amœbic dysentery, seen between February 1890 and July 1891. One case was tropical, one of doubtful origin, the remaining twelve were endemic. The cases are given in full; there is a careful analysis of the symptoms, post-mortem appearances, and treatment. The local treatment may be referred to. It consisted in sedative rectal injections when pain was severe and the patient was distressed by frequent evacuations; parasiticide rectal injections, half a litre to one litre of solutions of bichloride of mercury, of the strength of 1–5000 to 1–1000, were injected two or three times a day and retained from ten to fifteen minutes, during which time gentle friction of the abdomen along the course of the colon was practised. The passage of the enema was facilitated by placing the patient in the knee-chest position. If the rectum was very irritable, a cocaine suppository was used before the injection was given.

A bibliography adds to the interest and utility of this valuable contribution.

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*New York Medical Journal.* Jan. 30th, 1891; Feb. 6th and 13th, 1892.

### *The Progress of Cystoscopy.*

SINCE the introduction of the Nitze-Leiter Cystoscope (1887), in its more perfected form, excellent work has been done in cystoscopy in this and other countries—the work of Nitze and Fenwick of London more especially having been of much value to place the instrument, as a diagnostic and prognostic agent, on a sure foundation as an essential in the armamentarium of the surgeon. So much has been done by different workers with the instrument, and reports of so many cases showing its value have been published, it may be thought an act of supererogation to give further details of cases, but it is only by persistent and frequent repetition that the mass of the profession can be caused fully to recognise the value of a new method at a time when so frequently new ideas are propounded merely to be dismissed as valueless. The cases quoted in three consecutive numbers of the *New York Medical Journal*, by Dr Willy Meyer, constitute another series of successes with the cystoscope.

Dr Meyer shortly reviews the development of the instruments which have been introduced to simplify and enhance the use of the cystoscope for diagnosis in obscure renal and vesical disease. In his opinion the two chief improvements are the introduction of the "Irrigating Cystoscope," and the modifications in Leiter's instrument recommended by Hurry Fenwick, and incorporated in the instrument sold as his modification of Leiter's. Dr Meyer alludes to, but apparently is not familiar with, the cystoscope introduced by Grünfeld, with the light external (*lumière externe*), an instrument with which Grünfeld and Bremner have had considerable success in the treatment of cases intra-vesically. Dr Meyer as a rule uses Nitze's instrument in preference to Leiter's, but does not consider that either has a distinct advantage over the other provided the surgeon has a supply of extra lamps for each instrument. The "*irrigating cystoscope*" is chiefly valuable in those cases where the bleeding is profuse, as in vascular tumours, but the author points out that in such cases clots may block the necessarily small tubes, and prevent a constant stream of lotion from passing, thus defeating the object of the instrument. In other cases where it is desired to increase or diminish the quantity of fluid within the bladder while the examination is being conducted, the irrigation instrument may be used. Apart from the references to the "irrigating instrument" and "Fenwick's modification" there is nothing in Dr Meyer's remarks to show that other modifications have proved advantageous. Antal, Burchhart, Guyon, Janet, Nitze, and others, by the examination of obscure vesical and renal disease recognised by cystoscopic examination when other examination had failed, have shown the value of the cystoscope, but in the series of cases of hæmaturia and pyuria recorded by Meyer in the third article of the series, in which blood or pus was seen to be ejected from the ureteral openings, we have further evidence of its usefulness in diagnosis. This is well shown in Case IV. of the series.

"Mrs P., æt. 48 years. For fourteen years the urine had been muddy and of offensive smell. Two years ago pains in the left lumbar and hypochondriac regions appeared, the urine became of a milky colour, and had lately contained small particles of coagulated blood. . . . . .

"Could this evidently suppurating left kidney still be removed? Did it still partake in the secretion of urine? Were both kidneys diseased?

"*Cystoscopy under cocaine:* Mucous membrane of the bladder hyperæmic, and around the left ureteral orifice papillomatous in appearance. Out of the latter a very long, worm-like, under the electric illumination snow-white, shining thread of thick pus of the size of a thin pencil is very languidly making its way at short intervals. No jet whatever. The pus evidently was very viscid, as the long strings settle and curl in the bladder fundus—a very characteristic picture, which was also plainly noticed by a number of gentlemen present. It took some time before the medium became muddy. The right ureteral orifice was occupied by a round red growth of the size of a cherry. On putting the prism quite close to it, it appeared transparent. It consisted of mucous membrane (prolapse of the ureter). Out of its left (median) side jets of seemingly clear urine were thrown at short intervals.

"Cystoscopic diagnosis: 'Left suppurating kidney. Its secreting tissue entirely gone. Right kidney already does double duty for its destroyed fellow. Some irritation in the pelvis of the right kidney.'

"On account of this cystoscopic diagnosis I proposed nephrectomy. The operation was done by me at the German Hospital, December 29, 1890. It was found that the whole greatly enlarged left kidney was sclerosed, and did not present a bit of normal secreting tissue. It contained many cavities communicating with its pelvis. A large ramified stone entered a number of them. After the operation the amount of urine never varied except in the first twenty-four hours. The patient made an uninterrupted recovery up to the thirty-ninth day, when she was suddenly seized with intense right renal colic and abundant hæmaturia. After five days of serious, nearly hopeless, illness she passed a stone (an excellent *demonstratio ad oculos* of the pathognomonic correctness of prolapse of the ureter). From that moment on she was again well and remained well. To-day she is perfectly healthy; her urine absolutely clear."

After stating the three cardinal conditions which enable an examination to be made,—viz., 1st, The urethra of sufficient calibre to admit the instrument; 2nd, Capacity of bladder to hold at least five ounces; and 3rd, The fluid in the bladder to be transparent—the author remarks that cystoscopic examination should not be had recourse to until the whole history of the case has been fully considered, but that if then any point remains uncertain, cystoscopy should be performed.

In closing he offers, among others, the following conclusions:—

1st, In all obscure reno-bladder affections cystoscopy has to be practised, if necessary repeatedly, before operative interference for diagnostic purposes is resorted to.

2nd, There are a number of causes which make cystoscopy impracticable.

3rd, Cystoscopy is an easy and harmless examination, but its successful employment requires experience.

4th, It should be performed as a *dernier ressort* after all other well-known means for making a diagnosis have been exhausted.

5th, It is superfluous, in the majority of cases at least, to perform a preliminary cystotomy for diagnostic purposes.

At the end of the paper a partial list of the literature since 1887 is given.

# Part Third.

## MEETINGS OF SOCIETIES.

## MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

### SESSION LXXI.—MEETING VI.

*Wednesday, 2nd March* 1892.—Mr JOSEPH BELL, *President, in the Chair.*

### I. ELECTION OF MEMBERS.

Dr Robert Dundas Helme, 8 Brunswick Street, and Frederick Thomas Anderson, L.R.C.P. & S. Ed., L.F.P.S. Glas., 20 Inverleith Row, were elected Ordinary Members of the Society.

### II. EXHIBITION OF SPECIMENS.

*Dr William Russell* showed a series of PATHOLOGICAL SPECIMENS.

### III. EXHIBITION OF PATIENT.

*Dr John Macpherson* showed a patient exemplifying the result of treatment in MYXŒDEMA. A full account of this case appears at page 1021 of this Journal.

*Dr Lundie* said he had a case of myxœdema at present under treatment by subcutaneous injection of extract of sheep's thyroid, according to the method of Dr Murray of Newcastle, with very encouraging results. There is a curious contrast in regard to immediate effect between this treatment and the treatment by transplantation. In his patient no change to speak of could be observed for five or six weeks after the treatment was begun, though since then her condition has improved most satisfactorily.

## IV. EXHIBITION OF INSTRUMENT.

*Dr Dawson Turner* showed a UNIVERSAL ELECTRIC BATTERY.

## V. ORIGINAL COMMUNICATIONS.

1. *Dr R. W. Philip* read his paper on A THOUSAND CASES OF PULMONARY TUBERCULOSIS, WITH ETIOLOGICAL AND THERAPEUTIC CONSIDERATIONS, which appears at page 998 of this Journal.

*The President* thanked Dr Philip for his paper, which was the outcome of an immense amount of careful work, and would doubtless receive, as it deserved, much attention.

*Dr James Ritchie* asked whether, among so large a number of cases, Dr Philip had found histories of early and excessive menstruation? One of the charts exhibited showed the largest percentage of cases of phthisis between the ages of 25 and 35, but the number of people living at those ages was greater than for the more advanced periods of life,—can Dr Philip give the percentage in relation to the number living at the several ages? In another chart it was seen that the largest number of cases occurred in persons of heights 5 ft. 6 to 5 ft. 8 in., but these are the most common heights in this country,—can Dr Philip state what is the ratio to the numbers alive at each height? In the experience of life assurance companies pleurisy is a very common incident in the histories of those dying of consumption. Pleurisies recovered from are supposed to be frequently tubercular, and that the poison remains latent, but at a later period, under suitable circumstances, it is supposed to become active and to develop afresh,—had Dr Philip many cases with a previous history of pleurisy? The speaker was not sure if he exactly understood Dr Philip's view of the relation of bronchitis to phthisis. He had referred to errors of diagnosis, but he supposed that Dr Philip regarded bronchial catarrh as a predisposing cause by producing a favourable nidus for the bacillus, also that measles acted in a similar way, having, in addition to the bronchial catarrh, the powerfully debilitating influence of the disease. As to hæmoptysis, the speaker's experience was at variance with the views which they had just heard. He believed that hæmoptysis occasionally had a causal relation, that the inspired blood lighted up a pneumonia which became the seat of tubercular infection. Had Dr Philip, in this large number of cases, found that a rheumatic constitution modified the course of the disease in a favourable manner?

*Dr R. F. Leith* asked if Dr Philip had seen many cases of pneumonokoniosis set up by flour, and cited a case seen in the post-mortem room.

*Dr R. W. Philip* thanked the members of the Society for their kind reception of his paper. Referring to what had been said on the subject of menstruation, he had nothing to add. The curves which he had prepared to illustrate questions of age and height were especially of comparative and local value. The former indicated that the age of greatest frequency in the Edinburgh district, so far as could be gathered from the statistics of patients still in life, with pronounced tubercular lesions, corresponded largely with the results of the observations made in the United Kingdom generally on the basis of mortality per so many persons living. The curve of height had been prepared, as indicated in the paper, for purposes of comparison with a table communicated by Dr James to the Society some years ago. As to pleurisy, he had endeavoured to emphasize the suspicious character of a large proportion of pleurisies, not as leading to tubercular affection of the chest, but as being the first definite indication of the tubercular condition. Similarly, while bronchitis might lead in the way he had indicated to the establishment of tuberculosis, he wished to accentuate the fact that frequently cases were diagnosed as being simple bronchitis, while the localisation of the rhonchi and the alteration of the breathing in a limited area gave sufficient proof that the process was a more serious one. He had not unfrequently seen such cases where a diagnosis of bronchitis alone had been given, and examination showed that the sputum contained the tubercle bacillus in abundance. He did not think that a hæmoptysis, pure and simple, was probably ever the *cause* of the establishment of the tubercular condition. There occurred occasionally an antagonism between rheumatism and phthisis. Such cases had been recorded. He had been trying for long to get hold of good illustrations of the co-existence of the conditions. Apart from cases of chronic rheumatism, or patients with a rheumatic history, he had not been able to make observations. In these cases there had been no appreciable alteration from the usual course or type of phthisis.

2. *Dr A. Lockhart Gillespie* read his paper on NOTES ON TOXIC EFFECTS OF EXALGIN, of which the following is an abstract:—A young man of 23, suffering from severe toothache, had taken 36 grains of exalgin between 2 and 11 P.M. Shortly after 11 he relapsed into unconsciousness. When seen, his temperature was found to be normal, his pulse 79, regular, of fair tension, but all

his muscles paretic. With severe pain in his head, convulsions occurred every few minutes, and on tapping the scalp or pricking the arm or leg with a pin, fresh spasms were initiated. All his reflexes were abolished, and his pupils, widely dilated, reacted sluggishly. As time went on the breathing became of a distinctly cerebral type, the pulse now and then intermitting during a paroxysm. About half an hour after he was first seen ¼ grain of morphia was injected, and he swallowed, though with difficulty, two pills, the only purgative handy. Cloths, soaked in cold water, were applied to his head. As the pupils contracted under the influence of the morphia the fits became less severe, but the effect of the drug did not commence until ninety minutes after injection. All the following day the patient, who remembered nothing of the previous night, was unable to use his muscles, while his arms and legs were absolutely anæsthetic. His bowels had moved freely. He had a slight return of the symptoms next night, but 15 minims of laudanum, repeated every four hours, soothed his irritated medulla, and in the course of the following day he became considerably better. Dr Gillespie was inclined to believe at first that the symptoms might be due to a cerebro-spinal meningitis of influenzal origin, as several cases of this disease had lately been seen in Edinburgh. The absence of high temperature and the quiet pulse negatived this supposition. It was then first found out that he had taken so much methyl-acetanilide, a drug the maximum dose of which Bartholow gives as 12 grains *per diem*. The usual treatment recommended for such cases is free stimulation. In this instance it appeared to Dr Gillespie throughout that the reverse was required ; and although it might be heroic to inject morphia into an already unconscious man, the end justified the means. Administration of chloroform or ether was out of the question, when the state of the breathing was considered. Other cases have been recorded in the course of the last two years, the symptoms usually comprising delirium, unconsciousness, and convulsions. In conclusion, exalgin was not a safe drug for patients to take without medical advice. It should never be given as an antipyretic, and as an analgesic only in doses of 1 to 3 grains once or twice in the twenty-four hours.

*The President* thanked Dr Gillespie for his careful description of an interesting and instructive case.

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## OBSTETRICAL SOCIETY OF EDINBURGH.

### SESSION LIII.—MEETING V.

*Wednesday, 9th March* 1892.—Professor A. R. SIMPSON, *President, in the Chair.*

I. *Dr Haultain* showed two specimens of DEVELOPMENTAL ANOMALIES OF THE FALLOPIAN TUBE. The first showed an absence of the abdominal opening, the end of the tube being quite smooth and resembling the finger of a glove. The mucosa of the tube was quite smooth, there being a total absence of the usual well-marked longitudinal folds; this, he thought, might have an important connexion with the want of the fimbriated extremity, as it was known that dehiscence of the tube probably took place along the grooves between these longitudinal folds, and the folds themselves formed the fimbriæ. The patient from whom the tube was removed was a multipara, the other tube was quite normal. The ovary on the same side as the undeveloped tube was the seat of a cyst the size of a walnut, the rest of the organ being cirrhotic. The second specimen was a transverse section of an evidently normal tube removed in Tait's operation for fibroid tumour. It showed, however, two distinct cavities, the lumen of each being surrounded by branching processes covered by columnar epithelium. The abdominal end of the tube was unfortunately lost—Dr Stiles, who cut the section for a physiological specimen, not having noticed the abnormal condition till it was examined under the microscope.

II. *Dr Cullen* showed a specimen of ANENCEPHALUS WITH SPINA BIFIDA. It was the product of an eighth pregnancy. There was nothing noteworthy with regard to the previous pregnancies or with regard to this one. The mother thought herself to be about the eighth month in the family way, when the waters broke suddenly one night when she was at rest in bed. A few slight pains came on after this. She was seen 40 minutes after rupture, when a coil of pulseless cord was found protruding at the vulva. The placenta was at the ostium vaginæ, and above it the two feet were felt. The os uteri had contracted pretty firmly over the thighs of the infant, and it was an hour before the child was born. The fœtus was a female, rather small, and apparently between eighth and ninth month. The bony vault of the skull was gone, and only a round mass the size of a tangerine orange, and quite soft, was present above the base of the skull. The fœtus had the typical anencephalic appearance, the head resting upon the shoulders without the intervention of a neck, and the ears being wedged in on each side in the groove between the head and shoulder. There was, in addition to the anencephaly, a state of spina bifida, the neural arches being absent throughout the cervical, dorsal, and upper part of lumbar region. There was nothing abnormal in the condition of thoracic and abdominal organs, and there were no deformities of the extremities. The supra-renals were not to be found, but that may have been due to hasty dissection. In conclusion, it may be stated that the woman never suspected that there was anything abnormal in the fœtus, which she had felt moving about freely a few hours before the rupture of the membranes. The amount of liquor amnii was very great, so that, as is so frequently the case, the anencephaly was associated with hydramnios.

III. *Dr Church* showed, in connexion with his paper on "Thrombosis of the Pulmonary Arteries," a portion of LUNG with a decolorised clot in the pulmonary artery. Also another portion of the same LUNG where a branch of the pulmonary artery which had been dissected out was filled with a red clot. The cut surface of the clot in the main branch showed a portion of older clot on one side. The lung tissue was infiltrated with blood. He also showed an APPARATUS FOR INHALATION OF OXYGEN GAS, by means of which the gas could be inhaled by the mouth or nostril, diluted or undiluted with air. It consisted of a bladder, capable of holding about 1 cubic foot of oxygen, with stop-cock and tubing. Also the iron bottle in which oxygen was supplied in the concentrated form, from which the bladder could be from time to time filled as required.

IV. *Drs Hart* and *Gulland* read their paper ON THE STRUCTURE OF THE HUMAN PLACENTA, with special reference to the nature of the reflexa.

The President made some remarks, and Drs Hart and Gulland replied.

# Part Fourth.

## PERISCOPE.

## MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By WILLIAM CRAIG, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

ACTION OF METHACETINE ON PROTOZOA.—Roncagliolo (*Gazz. d. Osp.*, March 15th, 1892) has tested the action of various specimens of methacetine on protozoa (chiefly on a variety of paramœcium), adopting the method described by Lauder Brunton in his *Pharmacology*. Roncagliolo found that methacetine derived from different sources varied considerably in its effect on these low organisms,—some producing slowing of ciliary movements, etc., in twenty-four hours, and causing death in forty hours; while another specimen produced no apparent ill effect. He argues from this that the greater toxicity indicates the probability of the presence in such specimens either of undetermined isomers possessing a different action, or of other substances allied to methacetine, but of greater toxic power.—*The British Medical Journal*, 16th April 1892.

RED BILBERRY IN RHEUMATISM.—At the suggestion of the Russian Medical Council, T. T. Hermann tried the effect of the red bilberry (*Vaccinium Vitis Idæa*),—a very common plant not only in Russia but also in the Highlands of Scotland,—which is extensively used by the Russian peasantry as a remedy for rheumatism.

He used it in the form of a decoction on infusion, one part of the fresh herb, with roots, to eight parts of the colature (from two to three tumblerfuls being given daily), in an obstinate case of chronic articular rheumatism, in which all the usual methods of treatment had failed. A striking improvement followed in a few weeks, while in two months the patient (an old man) was practically cured. S. P. Smïrnoff of Cronstadt (*Meditzinskïa Pribavlenïœ K'Morskomii Sbornikii*, December 1891) next tried the substance in nine patients (sailors and soldiers aged from 22 to 27), of whom six were suffering from acute, and three from chronic articular rheumatism. In all of them the red bilberry treatment was commenced after all ordinary means (including salicylate of soda, iodide of sodium or potassium, hot baths, local application of tincture of iodine, turpentine oil, belladonna, mercurial or iodide of potassium ointment, etc.) had proved quite inefficacious. The remedy was used in the form of a decoction, prepared from one or two ounces of fresh stems with leaves and roots, in six ounces of water—this amount being given daily in divided doses. The duration of the treatment varied from one week to three months. Of the nine patients seven were cured, while in the remaining two the remedy failed. In all the cases a slight increase of urine was observed, but diarrhœa was checked.—*The British Medical Journal*, 19th March 1892.

THE USE OF LACTIC ACID IN THE PROPHYLAXIS OF GOUT.—Berenger-Ferand, in the *Bulletin Général de Thérapeutique* for December 30, 1891, contributes a short article on a method of treatment, suggested to him by Dr Foncant of Orleans, concerning the use of lactic acid as a prophylactic in attacks of gout. The patient is given 30 grains of lactic acid a day for three weeks or a month, with the result that the attacks are further apart and are much diminished in intensity. The exact mode in which the drug is given is as follows:—The patient is provided with 10 drachms of lactic acid, to which is added an equal quantity of water. In this manner half-a-teaspoonful represents 30 grains of the drug. In the morning the patient takes half to one teaspoonful of the solution with two, three, or four glasses of water. At the end of two or three weeks the employment of the drug is stopped for ten or eleven days, and then begun again in the same manner. This method is continued during several months, or even for years. Ferand states that he has found lactic acid to be an inoffensive medicament, not interfering in any way with nutrition or the digestive functions. He believes that it is a valuable remedy, which will be placed high in the list of drugs which possess distinct antilithæmic power.—*Therapeutic Gazette*, March 1892.

ON THE DISCOVERY OF QUININE AND PHENACETIN IN THE URINE.—*L'Orosi* for September 1891 contains a paper by Sisteni and Campani, detailing the results of a somewhat medico-legal search made by them in regard to the discovery of quinine or phenacetin, or their educts, in the urine. The urine which was tested was that passed within the twenty-four hours succeeding the ingestion of two grains of the hydrochlorate of quinine, or an equal quantity of phenacetin. The following conclusions are reached: Phenacetin produces the fluorescence characteristic of quinine in solution. Chlorine-water and ammonia produce a yellow-violet colour in aqueous solutions of phenacetin. Chlorine-water and ammonia produce a beautiful light blue colour in a mixture of quinine and phenacetin. This coloration is attributed to the combination of the two colours which have been just mentioned, namely, the yellow-violet of the phenacetin and the green of the quinine. The fumes of bromine, with a few drops of ammonia, give the characteristic green colour of the salts of quinine when mixed with phenacetin. If, however, the salts are used, this solution does not occur. Bromine fumes colour dilute solutions of quinine yellow, and the same thing occurs with phenacetin. If the salts are concentrated, a yellow precipitate is formed, which disappears on the addition of ammonia, without giving the green colour. For the development of the characteristic green colour of quinine with bromine it is always preferable to employ this agent in the form of fumes, which are produced with the least trouble by adding ammonia-water drop by drop. In this manner the green colour is produced by the presence of phenacetin, and finally becomes violet hue. After this solution is shaken with ether it forms two layers, the inferior or aqueous layer, having the green colour of quinine, and a supernatant layer, which is essentially decomposing, the yellow-violet of the phenacetin.—*Therapeutic Gazette*, March 1892.

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## OCCASIONAL PERISCOPE OF DERMATOLOGY.

By W. Allan Jamieson, M.D., F.R.C.P., Extra Physician for Diseases of the Skin, Edinburgh Royal Infirmary; Lecturer on Diseases of the Skin, Edinburgh School of Medicine; late Consulting Physician to the Edinburgh City Hospital for Infectious Disease.

An Improvement in Medicinal Soaps.—Stimulated by the work done in this direction by Unna and Eichhoff, Dr Buzzi has occupied himself with the question of medicinal soaps. He points out the disadvantages possessed by hard soaps in cakes. One is, that volatile ingredients when incorporated with them soon pass off, so that many such soaps when used contain none of the materials originally combined with them. This, he says, is particularly the case with carbolic soap. Another drawback is, that once begun, a cake of soap must be kept in use till finished. The air, the light, and repeated moistening and drying exert an unfavourable influence on many drugs, particularly such as easily decompose. Nor can such be readily used as soap alone; water must be employed as well, while, when a definite quantity of the drug contained is to be made use of, the amount is difficult to gauge. Hence he has had prepared soaps in a fluid or soft form. First, an absolutely neutral fluid potash soap had to be made, and this was found to be no easy task. With the assistance of Mr Keysser, a chemist in Hanover, this difficulty was overcome as follows:—A hard soda soap was prepared from the best olive oil and British soda; this was treated with dilute sulphuric acid, and the fatty acids were obtained in snow-white flakes, which were washed with distilled water till quite neutral. The pure fatty acids thus obtained were united with potass hydroxyde to produce a potash soap. This was carefully tested as to neutrality. More fatty acid or potass hydroxyde being added as was necessary, a little glycerine was introduced to keep the desired fluidity permanent. This formed his neutral fluid soap. To render it superfatted he added some 3 per cent. of lanoline to it; or if an alkaline soap was desired, one which would soften the epidermis or remove accumulations without causticity, he introduced 4 per cent. of pure carbonate of potash. Thus the soap could be had neutral, fluid, or soft, superfatted or alkaline in definite proportions, that of lanoline reaching if necessary 10 per cent. The employment of soap as a successful means of treatment depends on the individuality of the patient, and even the most experienced cannot decide on this without trying. In this new soap treatment, where the medicated soap replaces other modes of application, there are certain points to be borne in mind. These Buzzi enumerates as follows:—1. The proper soap base must be selected for the end in view. 2. The quantity of soap employed must be studied. 3. The suitable amount of water to be made use of to dilute the soap must be attended to. 4. The greater or less friction as to degree and duration must be studied. 5. The time the soap is to be allowed to act on the skin; and 6. Whether after its application the part is to be enveloped in cotton wool or some impermeable covering. The neutral fluid soap base as prepared by Keysser is a honey-yellow, transparent liquid, having a sp. gr. of 1·05, and freely soluble in spirit or water. This forms the base of all the other medicinal soaps. When evaporated in a water bath a soft soap is obtained, which can be made use of as a soap-salve, which forms an excellent excipient. The alkaline varieties are in like manner fluid and soft. These are applicable for the removal of scales and crusts in conditions where the skin is abnormally oily, or when comedones, acne, or rosacea are present alone, or as an alternative when other preparations are being used, as salves, pastes, glycerine jellies. The fluid form closely resembles Hebra's spirit of soap. The fluid superfatted soap contains 3–4 per cent. of lanoline. It is yellowish, non-transparent, and forms a muddy solution in water or spirit. The lanoline remains in the filter, proving that it forms no chemical combination with the soap. The superfatted soft soap contains 10 per cent. of lanoline, is called Sapo unguinosus c. lanolino (Keysser);

and resembles mollin, over which it has some advantages. From these numerous compound medicated soaps are prepared, such as camphor soap, useful in chilblains; carbolic soap, very valuable in pruritus and in urticaria; menthol soap, a palliative in pruritus; resorcin soap, which Buzzi states is more permanent than any yet prepared; and a tar soap, made with 5 per cent. and 20 per cent. of oleum fagi, likely to prove useful in psoriasis and chronic eczema.—*Beitrag zur Würdigung der medikamentösen Seifen, unter Zugrundelegung von Seifen in flüssiger und Weicher Form*, von Dr F. Buzzi. Hamburg, Leopold Voss, 1891.

Collem Plasters in the Treatment of Eczema.—Hans v. Hebra, in an exhaustive *résumé* of the treatment of eczema, thus describes some new plasters. These consist in a combination of anhydrous lanoline and india-rubber, the soft mass so obtained being spread on linen. The capacity for absorption of this basis is nearly unlimited, so that an increase in the percentage of the active ingredients is easily attainable. The collem plaster of oxide of zinc, usually prepared of a strength of 40 per cent., is one of the most useful in eczema. It possesses both macerating and desiccating properties. If placed on eczema which is covered with ever so thick a crust, in a few hours softening of the crust becomes perceptible, so that it can be wiped off, and a more or less copiously oozing surface, corresponding to the stage of the eczema, is exposed. If the weeping is very considerable, so that almost the whole surface is covered with a clear or sanious serosity, the plaster had best be laid aside, and Lassar's paste employed till the oozing diminishes. This attained, the collem plaster can be used anew. The plaster treatment need not be interrupted, if on the removal of the crusts no very moist places are revealed, but a new piece may be applied directly after removal of the former. In a few days, in many cases, a steady advance towards cure becomes apparent. The desiccative effect of the large proportion of zinc is so considerable as to more than counteract the maceration. The plaster adheres without any other means for securing it, and is easily changed. It can also be so employed as to compress the part when subcutaneous œdema is present, and thus occasion its dispersion. The plaster is made by Herr H. Turinsky, Bandage-maker, IX. Schwarzspanierstrasse 1, Vienna.—*Die moderne Behandlung der Hautkrankheiten Klinische Zeit- und Krait- fragen*, 7 und 8 Heft, 1891.

Unusual Mode of Transmission in a Case of Dermatitis Venenata.—Cantrell relates a case where a nurse in attendance on a woman recently confined, gathered a number of the leaves of the *Rhus toxicodendron*, but after having touched them she washed her hands several times in soap and water before dressing the patient. In doing so she came in contact with the abdomen, and in a day or two the eruption characteristic of rhus came on her hands and on the abdomen of the patient. A similar case is reported by White of Boston, in which a boy, himself unsusceptible to the poison, after pulling up some of the ivy vines, washed his hands thoroughly in vinegar and water; yet, some hours after, he took a child of six to a pond for a bath, holding him by the armpits and rubbing him on the axillæ and back. In two or three days deep ulcers formed on these situations, and the child died. A third instance is related by Blickharn, in which a man who had a slight eruption on his wrists communicated it in a severe form to his wife. These seem the only recorded cases in which the disease was contracted by merely handling the person affected. Dr White, in his work on *Dermatitis Venenata*, says,—"There are no grounds for believing that, the poison once absorbed or removed by washing or volatilization, the disease is in any way contagious. The freest handling of parts affected in all stages of the efflorescence fails to transfer the disease to the hands of others; and I believe surface contact with other parts of the same individual entirely ineffectual in spreading the eruption after the lapse of twenty-four hours." The cases cited would indicate that such communication is possible within such limits at least. (There is some reason to believe that the eruption due to the *Primula obconica* may in like manner be communicated.—W. A. J.).—*Philadelphia Medical News*, Oct. 24 and Nov. 19, 1891.

## SURGICAL PERISCOPE.

By Kenneth M. Douglas, M.D., F.R.C.S. Edin.

Restoration of Tendons after Division.—Dr Busse (Greifswald) writes a paper giving the results of researches on this subject. He shows first that the views of previous writers differ chiefly as to the following four points:—(1.) The influence of extravasated blood upon the healing of the wound; (2.) Whether union by first intention is possible; (3.) Whether tendon is capable of true and complete restoration; (4.) The tissue by formation of which healing occurs. In addressing himself to the solution of these questions Dr Busse performed twenty-four experiments upon the tendo-Achillis of puppies; in most instances a customary tenotomy was done; in some a dissection was made down to the tendon, which was then carefully cut through; in five cases a very partial, superficial incision of tendon was made, and in five cases the divided ends were re-united by sutures. The processes of healing were noted at various intervals, both by naked eye and microscopically, and Dr Busse formulates his conclusions somewhat as follows:—(1.) The healing process is not advanced by blood extravasation, but rather impeded by the time required for absorption of the extravasation; (2.) Primary or immediate union is not possible,—there must always be some new tissue between the re-united ends of the tendon; (3.) This interval is lessened if suture be employed; (4.) After three months the newly-formed tissue is not identical with tendon tissue, but is a modified connective tissue; (5.) By far the greater part of this tissue is formed from the cells of the neighbouring connective tissue and those of the vessels; (6.) The tendon corpuscles play a very subordinate part in the process of regeneration, until from the surrounding connective tissue, through new formation of vessels, there is an increased inflow of nutriment to the tendon tissue; then the corpuscles near these vessels begin to proliferate.—*Deutsche Zeitschrift f. Chirurgie*, 33 Band, 1 Heft.

REMOVAL OF CERVICAL RIB ON ACCOUNT OF PRESSURE ON THE BRACHIAL PLEXUS.—Dr Geo. Fischer (Hannover) records the case of a patient, a girl aged 21, who complained of pain in the neck on throwing back her head, and in the upper arm, and formication and numbness in the hand, the symptoms being increased by pressure over the clavicle; the grasp was enfeebled, but the range of movement of the limb was unimpaired. There could be felt a swelling in the left supra-scapular region, smooth, hard, elongated, about the thickness of one's little finger, and running obliquely from above downwards and inwards; towards the spine this swelling became lost among the muscles,—the lower end being distinctly palpable above the centre of the clavicle. The swelling was immobile and painless, and no pulsation was seen or felt. The diagnosis was made of a cervical rib pressing on the brachial plexus, and by operation this opinion was verified and the abnormal structure removed; its upper end was united to the transverse process of the 7th cervical vertebra, its lower end to the first rib; it measured 4 centimetres. Two common symptoms were absent in this case, viz., visible swelling, and superficial pulsation of the subclavian.—*Ibid.*

TREPHINING FOR EPILEPSY AND MUTISM.—Dr Hammond (Washington), in recording seven recent cases of brain surgery, narrates that of a child aged 3, who, epileptic for about a year, had entire loss of the faculty of speech, and suffered from convulsions about once a month. There was history of a fall, but no sign of injury to the head. Trephining was done over the posterior part of the 3rd frontal convolution. The bone was found much thickened, but the dura healthy. The patient remained several weeks under observation, during which time no fits occurred, and she was beginning to talk when she left. Improvement continued, and now (Oct. 1891), at the age of 5, she speaks as well as other children of that age. There have been no convulsions in all the period since the operation, and the child appears in perfect health. Other cases recorded in the paper are of great interest, though some are less successful in their issue.—*Med. News*, Oct. 31st, 1891.

DIURETIN AS A PREVENTIVE OF "URETHRAL FEVER."—Dr Keyes (New York) believes that the administration of this drug in cases of operation on the bladder and urethra will prevent or moderate the dangers of urethral fever. He gives it on the day of operation—10 grains every four hours for forty-eight hours, and gives 60 grains of salol per diem for forty-eight hours before operating. Since adopting this procedure Dr Keyes has never seen "chill" or suppression in any of thirteen cases of major operations, some of them on most unpromising subjects.—*Ibid.*

TREPHINING AND REMOVAL OF CORTEX IN JACKSONIAN EPILEPSY.—Dr Keen reports this operation. The patient was a woman aged 27. The case had begun with sensory disturbance in the limbs of the left side, especially the arm. The spasm had first affected this side, and usually was initiated with a shoulder movement, but very rapidly extended. On trephining the bone was found very thick, the diplöe being almost obliterated, and the deep surface pitted in the resemblance of a small bunch of grapes. This was due to a growth or granulation, from the pia apparently, which had bored through the dura and formed a nest for itself in the skull, to which both membranes adhered. A triangular bit of dura with the growth was removed. The exposed pia-arachnoid was œdematous, but nothing further abnormal was found. The faradic current was then employed to determine the cortical centres exposed, and a portion of cortex $\frac{3}{4}$ths of an inch in diameter, found to include the centres for the shoulder, was excised to the full depth of the gray matter. A ligature was required to control bleeding from a large vessel in the brain, and a small drainage-tube was introduced, but removed next day. The bone was not replaced. The wound was drained superficially by horsehair, and healed by the eleventh day. Dr Keen remarks, that the tip of the growth mentioned above, which proved sarcomatous with some hæmorrhagic pachymeningitis, was found within $\frac{1}{16}$th of an inch of the point selected as the shoulder centre, and the probable seat of irritation; that while the excision of cortex might have been done as a secondary operation if the attacks had continued, the recognition of the centres might then have been difficult; that he believes drainage can, as a rule, be dispensed with, though perhaps a few strands of horsehair for twenty-four hours are of advantage. As to the after-history, power returned to the limbs paralyzed by this operation upon the thirty-third day; spasms continued after operation with the frequency of four or five daily, but less severe than formerly; and during the succeeding six months there were usually three or four attacks in twenty-four hours (previous to the operation there were in the same space of time twelve or fifteen attacks of a more severe nature); the general health is improved, and there has been increase of weight. The patient has good use of the left arm and leg, all movements being preserved.—*American Journal of Medical Sciences*, Dec. 1891.

OPERATIVE TREATMENT OF INGUINAL HERNIA—TREATMENT OF THE SAC.—Prof. Rose thinks that "the complete removal of the sac, provided that the neck is ligated efficiently and as high up as possible, is the most simple and satisfactory plan of treatment," it being most essential to obliterate the infundibuliform depression of the parietal peritoneum.—*Medical Press and Circular*, Dec. 2, 1891.

TENDON GRAFTING.—Dr Rochet obtained a good result by this procedure in a case in which the ends of the divided tendons of the superficial and deep flexors of the index finger could not be brought together. The ends were exposed, and incision made on the palmar aspect of the 1st phalangeal joint. The tendon of the profundus was divided at this point, and the separated portion drawn from the sheath and stitched proximally to the tendons of the sublimis and profundus, and distally to the sublimis tendon; the proximal end of the portion of the deep flexor tendon which remained between the point where it pierces the sublimis and its insertion, was then sutured to the lateral slips of the sublimis tendon.—*Gazette hebdom. de Med. et de Chir.*, June 20, 1891.

## OCCASIONAL PERISCOPE OF SURGERY.

By EDWIN G. BULL, M.B.

HUDELO ON SYPHILITIC IMMUNITY.—From a merely theoretical point of view it would seem to be impossible to lay down the conditions under which immunity against the syphilitic virus becomes established. Hudelo accordingly sets himself the rather heavy task of analysing the numerous recorded experiments and clinical facts in connexion with the question, and comes to the following conclusions:—It may be accepted as a general rule that during the development of constitutional syphilis the infected organism resists a fresh syphilitic infection, both during the secondary as well as during the tertiary period. This immunity lasts as long as the syphilis itself. All writers agree that the immunity so acquired coincides in point of time with the constitutional infection of the organism, and that the latter is complete when the first eruption appears. Hudelo considers that the appearance of the chancre indicates the establishment of immunity. It is possible there may be an occasional absence of immunity during the earlier days of chancre development before glandular mischief has been set up. When this occurs, however, immunity is established, and thus may be regarded as existing a considerable time before the onset of constitutional symptoms. Hudelo is very sceptical as to the possibility of reinfection, and believes that immunity once established terminates only with the death of the individual: exceptions are of doubtful probation, and, at all events, are exceedingly rare. Persons suffering from hereditary taint are also immune; at least reinfection in such cases has not been proved. On the other hand, it is possible for syphilis to be acquired by individuals who, born of syphilitic parents, have during their early life been entirely free from the pathological signs of hereditary taint (Hudelo, *Ann. de dermat. et* *syph.*, 1891, Nos. 5 and 6).—Kopp in *Centralb. für Chirurg.*, 1892, No. 3.

FERRAS ON HEREDITARY SYPHILIS.—Hereditary syphilis does not always follow the law of successive diminution in intensity of the syphilitic inheritance. In proof of this Ferras gives eight cases. Specially interesting are the long periods which sometimes elapse between the time of the parental infection and the birth of syphilitic offspring, one or more healthy children being born in the interval (Ferras, *Ann. dc derm. et syph.*, 1891, No. 4).—Kopp in *Centralb. für Chirurg.*, 1892, No. 3.

JULLIEN ON HEREDITARY SYPHILIS.—Jullien gives a very interesting list of over 43 marriages and "pseudo marriages," in which one or both parents were suffering from syphilis. As the result of 206 pregnancies there were 36 abortions and 8 still-births. Of 162 children born at term 69 died soon after birth at a very early age. Of the remainder 50 became syphilitic, and 43 appear to remain healthy. Of the 69 children dying soon after birth the cause of death was—in 21 cases, meningitis; in 8, convulsions; in 12, croup and throat affections. It is needless to lay any stress on the terrible lesson to be drawn from these figures (Jullien, *Ann. de derm. et syph.*, 1891, No. 4).—Kopp in *Centralb. für Chirurgie*, 1892, No. 3.

JAMIN ON HÆMOSPERMIA.—Jamin describes those conditions under which blood may appear in the semen in spite of the absence of any inflammatory process in the uro-genital tract. In such cases there are probably congestive conditions of the seminal vesicles due to masturbation or excessive sexual indulgence; or the condition appears during the first copulation after a long period of abstinence. Elderly persons, in whom hyperæmia of the prostate and *vesiculæ seminales* is not uncommon, appear to come in the latter category. In such cases rupture of small bloodvessels is easily induced. Jamin gives two typical examples of this kind. He also mentions the occurrence of the phenomenon in the so-called spermatic colic, and as a vicarious bleeding in hæmorrhoidal cases. The prognosis, in all cases where the cause is a congestion of the seminal vesicles, is good (Jamin, *Ann. des mal. des org. genito-urin.*, 1891, vol. ix., No. 9).—P. Wagner in *Centralb. für Chirurgie*, 1892, No. 7.

BAUDEH, HYDATID CYST DEVELOPED IN SUBPERITONEAL CONNECTIVE TISSUE BETWEEN BLADDER AND RECTUM.—A youth, aged 16, who for eleven years had suffered from prolonged urticaria, suddenly developed nocturnal incontinence of urine and obstinate constipation. A tumour was found, extending from the pelvis to the umbilicus. The mass was smooth and tense, and fluctuated in its upper part. The rectum was completely blocked. There were no adhesions to neighbouring organs. The bladder could only be reached by a soft catheter, and as the patient could only imperfectly empty the organ, it gradually filled up till it reached the umbilicus.

The probable existence of a hydatid cyst was diagnosed, and fluid (clear, non-albuminous), containing numerous scolices, was obtained on puncture. Baudeh notes that only two similar cases have been recorded (Tillaux, 1883; Nicaise, 1884). In these also vesical disturbance was first noticed. (Nothing is said of cure, and the fluid appears to have re-collected) (Baudeh, *Journ. de Méd. de Bordeaux,* 1890, No. 29).—Erkbam in *Centralb. für Chir.*, 1892, No. 6.

LIHOTZKY ON HYSTERECTOMY.—In Chrobak's Clinic of late the following is briefly the method pursued in cases of uterine myoma. Ten successive cases have been submitted to operation, and all recovered. Careful antiseptic preparation of patient, vaginal douches, cleansing of the same and cervix uteri with pads of cotton wool soaked in solution of corrosive sublimate (1 per cent.), iodoform stems in uterine cavity, and iodoform gauze in vagina. Laparotomy, turning out of tumour, separation of infundibuliform and broad ligaments on all sides to the margin of the uterus, section of peritoneal folds in connexion with anterior and posterior walls, separation of peritoneum and bladder in front and of the same membrane behind to a point a little above the vaginal insertion. Constriction with elastic ligature, and removal of tumour. Deep cauterization of stump, and suture of same, with 2–3 deep stitches over iodoform gauze tampon in vagina. Removal of gauze, introduction of sharply-curved grooved sound, the flattened top of which is pressed firmly by an assistant against posterior wall of cervix. The posterior fornix is made tense with forceps or hooks, and incised along groove of sound, and 3–4 transverse sutures are inserted to close the opening. Under guidance of a finger, introduced from above, ligation of broad ligaments, etc., close to cervix and section with scissors, care being taken to leave a good-sized pedicle and a small portion of cervix. Individual ligature of any large arteries in the stump (arter uterin). Division of anterior fornix, and treatment of same as for posterior fornix. Then either suture of vagina (without including peritoneum) or introduction of wick or gauze drain by means of long sound passed from above; the sound is withdrawn through vagina, and the latter lightly closed with iodoform gauze just covering the wick. Then suture of pelvic peritoneum, beginning laterally, the serous membrane being thereby made to cover the ligature stumps and close all fissures between folds of the ligaments: the vagina, open or not, being covered with peritoneum. Closure of abdominal wound by staged suture. The advantages of this method are very obvious. They consist, as compared with the extra-peritoneal method, in shortening of the period of convalescence, avoidance of long suppuration of the suspended stump, and of ventral hernia. It is safer, compared with the intra-peritoneal method of Schroeder, owing to the absence of a sunken secreting cervical stump liable to undergo necrotic change (Lihotzky, *Wien. Med. Woch.*, 1891, No. 27).—Alex. Frænkel in *Centralb. für Chirurgie* 1892, No. 4.

PALTAUF ON ACUTE PYÆMIA: DEATH IN FORTY-EIGHT HOURS. —A furuncle of the skin of the right upper eyelid was the primary lesion. Thrombo-phlebitis of the superficial and deep veins of the temporal plexus was accompanied by severe inflammatory œdema of the cellular tissue. Through anastomosing veins the process reached the dural veins and the cavernous sinus; brittle thrombotic masses became detached, and produced pulmonary enfarction and abscess. Fibrino-purulent pleurisy and general blood-poisoning followed. Staphylococcus cultures from this case were very virulent (Paltauf, *Wien. Klin. Wochenschrift*, 1891, No. 35).—Alex. Fraenkel in *Centralb. für Chirurgie*, 1892, No. 5.

# Part Fifth.

## MEDICAL NEWS.

EDINBURGH UNIVERSITY.—The following is the official list of those candidates who have passed the first professional medical examination held in March 1892:—James Affleck, Thomas Alexander, James Allison, F. W. Allkin, John Anderson, W. B. Anderson, H. H. Balfour, James Bannerman, Henry Bateson, E. T. F. Birrell, A. W. Bowie, Daniel Brough, Nathaniel Caine, R. W. Cappie, J. M. Crawford, D. F. Dewar, J. H. Dixon, A. W. Easmon, John Eason, W. F. Eason, G. C. Elliott, T. G. Elsworth, W. A. J. Erskine, Thomas Evans, D. A. Farquharson, F. W. B. Fitchett, John Forbes (M.A.), J. A. Forrest, Harry Fowler, J. H. Fraser (M.A.), O. H. C. Fulton, J. F. Gibbon, W. E. Gibbons, J. A. Gibson, Thomas Gibson, S. J. Gilfillan (M.A.), J. D. Gilruth, Thomas Grainger, Lewis Grant (M.A.), J. F. Gregory, W. F. Harvey, J. B. Hay, Rhodes Haygarth, J. T. Hewetson, William Hewison, H. E. Huntly, J. K. Jamieson, G. J. Jenkins, Walter Johnson, D. J. Jones, D. T. R. Jones, F. R. Jones, F. C. F. Kerr, C. L. Chandu Lall, George Laurence, James Lee (B.A.), H. A. Leebody, L. S. L. Liddell, A. M. Love, A. P. Low, G. F. Lundie (M.A.), Alex. MacCarthy-Morrogh, Noel M‘Gowan, John Mackinnon, Donald Maclean, Kenneth MacLean, A. H. Macpherson, J. D. G. Macpherson, John Macmillan, N. H. Macmillan, G. D. M‘Rae, W. L. Martin (M.A.), Noel Mawdsley, I. J. van der Merwe, Archibald Mitchell, J. R. Muir, W. R. Murison, Harold Nuttall (M.A.), S. G. Ogilvy, A. L. Owen, A. D. Peill, W. J. Penfold, Thomas Pretsell, G. L. Procter, J. K. Raymond, C. W. Reid, T. W. Rhoades, S. H. Richards, Hugh Richardson, J. H. D. Roberts, Robert Robertson, T. E. E. Roddis, R. S. Rodger, F. S. Rose. Lauchlan Rose (M.A.), Richard Roycroft. T. D. Sadler, A. T. Sampson, P. W. Shepherd, T. B. M. Sherwen, B. I. G. Sibbald, E. R. Snijman, Alexander Steven, B. C. Scott, J. W. Simpson, H. J. F. Simson, Thomas Smith, Arthur Steel, W. H. Steele, William Stokes, J. C. Stuart, D. C. Sutton, A. W. Sweetenham, G. C. Taylor, W. M. Taylor, J. A. Thwaits, M. L. M. Vaudin, J. M. Watson, G. F. Whyte, L. A. Williams, Matthias Williams, R. S. Williams, C. F. Wills, W. H. Winstanley, J. R. N. Witherspoon, G. P. Yule.

The following is the official list of candidates who have passed the second professional examination last month:—C. J. H. Aitken, W. G. Alexander, William Anderson, W. C. Anderson, J. C. Atkinson, Andrew Balfour, Robert Ballantine, A. R. Bankart, J. P. S. Barboza, J. B. Bell, H. P. Bennett, J. G. F. Bent, James Blyth, Lawrence Bowman, J. W. P. Boyd, R. W. Briggs (with distinction), B. W. Broad, W. B. Broster, J. C. Brown, J. M. Buist, J. C. Caldwell, Peter Campbell, J. C. B. Carruthers, A. B. Carvosso, H. W. Case, Cuthbert Christy, John Clark, T. A. Clinch, G. A. Cohen, W. B. Craig (M.A.), Charles Crerar (with distinction), Andrew Croll, G. R. Denton, R. A. Dove, J. B. Duff (with distinction), R. C. Dun, J. D. Duncan, Thomas Dunlop, E. C. Edwards, F. L. Ehrke, P. D. Fick, A. M. Fleming, A. W. Forrest, W. E. Fothergill, M.A. (with distinction), E. J. H. Fraser (with distinction), J. G. Fraser, R. W. Fraser, T. H. Gee, C. S. Glegg, F. T. Gourlay, J. T. Grant (with distinction), H. M. Green, Harry Grey, R. C. L. Guthrie, Arthur Gwyther, W. T. Hall, W. C. Hamilton, Cooper Hardcastle, W. A. Hardiker, F. P. Hearder, C. A. Hogg, E. W. J. Ireland, W. R. Jackson (M.A.), W. E. Jameson, Sir B. S. Jareja, D. S. Johuston, Charles Kerr (with distinction), H. H. Khayatt, C. T. C. Kingdon, George Lane, F. W. Langton (B.A.), G. F. Leicester (with distinction), E. S. Lewer, J. M. Lincoln, W. F. M‘Allister-Hewlings, Hugh M‘Donald, J. H. M‘Donald, A. W. J. MacFadden, J. C. Macgowan, J. G. Macindoe, Malcolm M‘Larty, J. G. M‘Naughton, Archibald Macnicol, T. G. Macormack (M.A.), J. F. Macpherson, R. H. Makgill (with distinction), R. B. Marjoribanks, A. C. Matchett, R. M. Matheson, A. H. Moorhead, George Munro, G. A. Murray, J. D. Noble, R. D. O'Neale, C. H. Passman, James Pearse, Thomas Pettey, Andrew Philip, John Phyn, R. H. Price, A. M. N. Pringle (with distinction), Albert Reid, J. K. Richards, Robert Riddell, David Ritchie, W. N. Robertson, Hugh Ross, W. M. Selby, J. P. Silver (B.A.), A. H. H. Sinclair, A. C. Smith, George Smith (M.A.), R. W. I. Smith, William Spettigue, John Steed (with distinction), J. W. Stenhouse, M. B. Steuart, J. P. Stewart, M.A. (with distinction), W. R. Strapp, D. W. Sutherland (with distinction), J. L. Sykes, W. A. Taylor, Charles Telfer, John Tennant, M.A. (with distinction), David Thomas (M.A.), F. V. Thomas (B.A.), J. A. Thorne, W. S. S. Titterton, W. B. Turnbull, H. S. Walsh, Francis Ward, Godfrey Warner, Harry Weighton, D. A. Welsh, M.A. (with distinction), R. H. Wilson, Thomas Yeates, Z. M. Zorab.

NEW BUILDINGS FOR THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA.—The Board of Trustees and the Faculty of the Jefferson Medical College have just completed the purchase of two large lots on Broad Street, giving them a frontage of about 300 feet, and a depth of 150 feet, upon which they will proceed to erect at once a handsome hospital, lecture hall, and laboratory building. The estimated cost of the buildings is $500,000. The hospital will be built not only as a suitable building in which to care for the sick and injured, but also will be provided with a large amphitheatre for clinical lectures. The basement of the hospital will be given over to the various dispensaries, each of which will be provided with large waiting and physicians' rooms, as well as rooms for direct teaching of the students. The buildings will be absolutely fireproof, and provided with patent sprinklers in case their contents catch fire. By the erection of three commodious buildings, the laboratory, where delicate work with the microscope or apparatus is carried on, will be separated from the college hall where didactic lectures are given, and so will be free from any jarring produced by the movements of large classes. With the hospital on one side affording clinical facilities, and the laboratory on the other side of the college hall for scientific research and training, the college will be most favourably situated for giving thorough instruction in medicine. Further than this, immediately across the street is the Howard Hospital, and on the adjoining corner the Ridgway branch of the Philadelphia Free Library, which contains all the scientific works belonging to this wealthy corporation. The new site is even more favourably situated in regard to the centre of the city than the old one at Tenth and Sansom Streets. The move has been made necessary by the large number of students who are now being instructed in this institution, and because the Faculty desire to keep the school and hospital in the foremost rank of medical education in this country. The buildings will be ready for occupancy in the Session of 1893-94.

THE CHINESE FORM OF HIGH DILUTION TREATMENT.—The *North China Medical Journal* is responsible for the following paragraph about an infinitesimally potential treatment employed at the antipodes; it is not improperly called "The Brass Ass Cure." That journal states that a traveller from Pekin says, "that he saw a method of cure which may be new to some of our readers. In a temple outside one of the city gates is to be found a brass mule of life size, supposed to have wonderful healing properties. Patients suffering from every imaginable disease seek this temple to obtain a cure. The method pursued is as follows: Supposing you suffer from sciatica, you go with all speed to this famous temple, and having discovered the particular part of the brass mule corresponding to the painful region of your own body, you first rub the animal a certain number of times and then with the same hand shampoo your own disabled member, and then—well, then the pain goes. The special feature of this method of cure is its delightful simplicity. Is your tooth aching? Just scrub the mule's teeth and afterward your own, and, *voilà!* the cure is complete. Have you an ulcer of the cornea? Pass the tips of your fingers to and fro over the particular eyeball of the mule, and then with well-regulated pressure rub repeatedly the afflicted eye. The mule has unhappily lost his sight during the many years he has been engaged in his benevolent work, the eyeballs, we are told, having been gradually worn away as the result of constant friction, until now you have only the empty orbits to operate upon. The animal is patched in all directions with fresh pieces of brass put on to cover holes produced by the constant friction of eager patients, and a new, perfectly whole mule stands ready at hand awaiting the day when his old colleague, having fallen to pieces in the service, shall give him an opportunity of likewise benefiting posterity." The reader of the above will recognise that there is in it a reminder of the *similia similibus* principle as well as that of minute dosage.

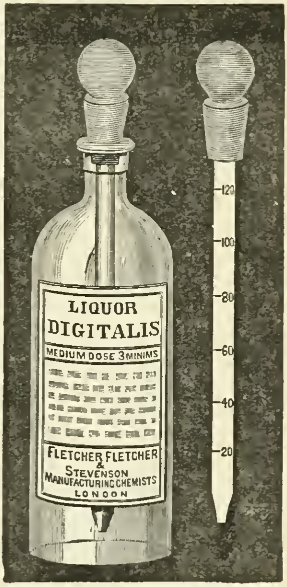
BURROUGHS, WELLCOME, & CO.—We are informed that at the Tasmanian Intercolonial Exhibition, the Jury have given to this well-known Firm a First Award for their "Compressed Drugs and Medicines;" a Special Award for their "Medicine Chests for Travellers and Explorers;" and a First Award for their "Kepler Solution of Cod-Liver Oil."

ESSENTIA MALTI (KEPLER).—Messrs Burroughs, Wellcome, & Co., London, the well-known chemists, have sent us a sample of "Kepler Essence of Malt." It is very agreeable to take, and is one which we can confidently recommend to the profession as a pleasant and powerful digestive of farinaceous foods.

GLYCERINUM PEPTICUM.—Messrs Burroughs, Wellcome, & Co. have also forwarded us a specimen of this new preparation. It is really a concentrated solution of pig's pepsin in glycerine. It is a reliable preparation. Twelve minims will digest 2500 grains of egg albumen. It contains neither alcohol nor antiseptics. It is pleasant to take, and is sure to become a favourite remedy after it becomes better known. We strongly recommend it to the notice of our readers.

SALIPYRIN.—Messrs Allen & Hanburys of London have sent us a sample of Salipyrin. This new drug is manufactured by Riedel of Berlin, and is much used in Germany. This substance is a compound of phenazonum (antipyrin) with salicylic acid, in the proportion of 57·7 per cent. of the former to 42·3 of the latter. It is a colourless crystalline powder, free from odour, and a not unpleasant taste. The dose is 15 grains up to 20 or 30 grains. It appears to combine in a remarkable manner the therapeutic effects of the two substances from which it is prepared. It will be found useful in rheumatic affections, influenza, and allied affections. It has been largely used on the Continent, and is worthy of a more extensive trial in this country. Messrs Allen & Hanburys have also sent a box of Cachets, each cachet containing 10 grains of salipyrin; and also a bottle of Tabellæ, each tablet containing 5 grains of salipyrin. Both forms will be found very convenient for administering the drug.

Autometric Stopper for Concentrated Liquors.—Messrs Fletcher, Fletcher, & Stevenson have sent us a specimen of an Autometric Stopper which they have had prepared for their Concentrated Liquors. The arrangement (as will be seen from the accompanying illustration) consists of a stopper formed of pure unvulcanized rubber, through which passes a strong glass pipette, accurately graduated in 5 minim divisions up to 120 minims. Attached to the tube is a rubber air-ball. On removing the stopper and attachment, and slightly compressing the ball, the required volume of liquor can be immediately withdrawn and transferred to the bottle which is to contain the medicine. This Autometric Stopper is an excellent invention, and is one which might be advantageously applied for many other purposes.



Liquor Mangano Ferri Peptonati (Hockin).—We have received from Messrs Hockin, Wilson, & Co. a sample of this new preparation. It contains 0·6 per cent. of iron, and 0·1 per cent. of manganese. It is an excellent preparation, and will be found useful as a tonic, especially in anæmia.

Sacklins' Poultices.—We have received from Messrs Sacklins & Co. samples of their poultices, and can recommend them as being very useful and easily applied. The linseed meal poultices are specially good.

Caffyn's Carnis Suppositories.—The Liquor Carnis Co. have sent us a sample of their meat suppositories, and we can recommend them as a valuable addition to our modes of administering nutrients to our patients. They undoubtedly supply a much felt want, and will be much used by the profession. If long kept they are apt to become covered with mould.

# PUBLICATIONS RECEIVED.

M. V. Ball, M.D.,—Essentials of Bacteriology. W. B. Saunders, Philadelphia, 1892.

W. L. Beardmore,—The Drainage of Habitable Buildings. Whittaker & Co., London, 1892.

I. W. Blackburn, M.D.,—A Manual of Autopsies. P. Blakiston, Son, & Co., Philadelphia, 1892.

F. J. Brockway, M.D.,—Essentials of Physics. W. B. Saunders, Philadelphia, 1892.

Dr F. Buret,—Syphilis in Ancient and Prehistoric Times. F. A. Davis, Philadelphia, 1891.

Catechism Series,—Physiology, Part I. E. & S. Livingstone, Edin., 1892.

James B. Clutterbuck, M.D.,—Stray Notes on Hygiene, etc. Henry Renshaw, Lond., 1892.

N. S. Davis, Jr., A.M., M.D.,—Consumption: How to prevent it and how to live with it. F. A. Davis, Philadelphia, 1891.

James Eisenberg, Ph.D., M.D.,—Bacteriological Diagnosis. F. A. Davis & Co., Philadelphia, 1892.

Dr C. A. Ewald,—Lectures on Diseases of the Digestive Organs. New Sydenham Society, Lond., 1891.

F. Forchheimer, M.D.,—The Diseases of the Mouth in Children. J. B. Lippincott Co., Philadelphia, 1892.

John Goodfellow, F.R.M.S.,—The Dietetic Value of Bread. Macmillan & Co., Lond., 1892.

Alex. Haig, M.A., M.D., etc.,—Uric Acid as a Factor in the Causation of Disease. J. & A. Churchill, Lond., 1892.

B. C. Hirst, M.D., and Geo. A. Piersol, M.D.,—Human Monstrosities, Part II. Lea Brothers & Co., Philadelphia, 1892.

Jonathan Hutchinson, F.R.S., LL.D.,—The Hunterian Oration, 1891. J. & A. Churchill, Lond., 1891.

Dr R. R. v. Limbeck,—Grundriss einer Klinischen Pathologie des Blutes. Gustav Fischer, Jena, 1892.

F. W. Lowndes, M.C.R.S. Eng.,—Reasons why the Office of Coroner should be held by a Member of the Medical Profession. J. & A. Churchill. Lond., 1891.

G. Macdonald, M.D.,—A Treatise on Diseases of the Nose and its Accessory Cavities. Alexander P. Watt, Lond., 1892.

Dr Pierre Marie and Dr Souza-Leite,—Essays on Acromegaly. New Sydenham Society, Lond., 1891.

A. M. Marshall, M.D., etc., and C. H. Hurst, Ph.D.,—A Junior Course of Practical Zoology. Smith, Elder, & Co., Lond., 1892.

Wm. Martindale, F.C.S., etc.,—Coca and Cocaine. H. K. Lewis, Lond., 1892.

Medical Annual and Practitioner's Index. John Wright & Co., Bristol, 1892.

E. Noeggerath, M.D.,—Beiträge zur Struktur und Entwickelung des Carcinoms. J. F. Bergmann, Wiesbaden, 1892.

J. A. Ormerod, M.A., M.D.,—The Diseases of the Nervous System. J. & A. Churchill, London, 1892.

Henry Power, M.B., and L. W. Sedgwick, M.D.,—New Sydenham Society's Lexicon. Part 18. Lond., 1891.

P. C. Remondino, M.D.,—The Mediterranean Shores of America. F. A. Davis & Co., Philadelphia, 1892.

C. E. A. Semple, B.A., M.B., etc.,—Elements of Materia Medica and Therapeutics. Longmans, Green, & Co., Lond., 1892.

Richard Sisley, M.D., etc.,—A Study of Influenza and the Laws of England concerning Infectious Diseases. Longmans, Green, & Co., Lond., 1892.

D. T. Smith, M.D.,—Obstetric Problems. John P. Morton & Co., Louisville, U.S., 1892.

D. D. Stewart, M.D., and E. S. Lawrance, M.D.,—Essentials of Medical Electricity. W. B. Saunders, Philadelphia, 1892.

T. H. Tanner, M.D., etc.,—An Index of Diseases and their Treatment. Henry Renshaw, Lond., 1891.

The Nursing Directory for 1892. The Record Press, London, 1892.

Transactions of the American Gynæcological Society, Vol. 16. Philadelphia, 1891.

Transactions of the American Ophthalmological Society. Washington, 1891.

Transactions of the American Otological Society, Vol. 5, Part. 1. New Bedford, Mass., 1892.

Transactions of the American Surgical Association, Vol. 9. Philadelphia, 1891.

Transactions of the Association of American Physicians, Vol. 6. Philadelphia, 1891.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. Baltimore, 1891.

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# Part First.

## ORIGINAL COMMUNICATIONS.

### I.—OBSERVATIONS ON THE ACTION OF ANTIMONY IN DISEASES OF THE SKIN.

By W. Allan Jamieson, M.D., F.R.C.P., and A. Home Douglas, M.B., F.R.C.P.

(*Read before the Medico-Chirurgical Society of Edinburgh, 6th April* 1892.)

The results obtained from the administration of tartarized antimony in some rather intractable affections of the skin, in a series of cases already published by one of us,[1] encouraged a further trial of the remedy under conditions which admitted of a more careful study of its action, with the object of determining, as far as possible from clinical facts, its mode of operation, and of perhaps affording more precise indications for its successful employment. The following investigations have been carried out in the recently established wards for Diseases of the Skin in the Royal Infirmary.

Antimony had, after being too extravagantly praised, fallen much into desuetude, in an exactly similar manner, though to a greater degree than mercury, which was distrusted at a not very distant period as a remedy for syphilis, a result which surely followed from the crude and unscientific mode in which it had been till recently employed. Another reason for the comparative neglect of antimony may possibly be found explained in that study of the natural course of disease, so persistently advocated by the late Professor Hughes Bennett, which the revulsion against the routine and heroic use of drugs had brought so prominently forward, and which has since yielded such valuable conclusions. Hence the statements in the text-books both of medicine and therapeutics are, to a large extent, not based on observations of very modern date. Thus among other points careful records of the temperature, in cases where antimony has been given for long periods, are deficient. Skin diseases offer an unequalled field for testing the value of such a powerful drug, but before proceeding to relate the cases we have followed, or to formulate the inferences we have drawn, it is necessary briefly to refer to the current opinions which are held as to the action of antimony on the system. In none of the works which we have consulted have we found these better summarized than in those of Dr Lauder Brunton and Dr Mitchell Bruce. It is there laid down that it influences metabolism, causing fatty degeneration of the organs, and increase of the nitrogenous products, oxygenation being comparatively deficient. It is regarded as a general depressant, lowering the circulatory, respiratory, and nervous systems. Among other modes in which it leaves the body, it is believed to be excreted partly by the skin, in the perspiration. "It is found to be a powerful general depressant, oxygenation being impaired, nervo-muscular activity reduced, the heart weakened, and the waste of the body increased through all the channels of excretion."[1] According to some it does not reduce the temperature in health. It appears to increase the urea, uric acid, and pigment, while diminishing the water and the chloride of sodium, probably by increasing the perspiration.[2] Ringer, however, says that it is doubtful whether the production of urea is increased, or that its elimination from the body is rendered more free. Observations on this point are not yet conclusive. Its action on chronic skin diseases is thought to be explained by the alterative effects mentioned already.

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[1] "On the Value of Antimony in various Inflammatory Affections of the Skin," *Brit. Journ. of Dermatology*, September 1891.

The direct action of antimony on the skin of frogs was studied by Miss Nunn,[3] and according to her experiments it possessed a deeper penetrative effect than arsenic, which was pretty nearly limited to the columnar cells of the epidermis, while antimony caused softening not only of these but also of those of the intermediate layer.

Such, then, are the few facts which we have been able to glean with respect to this medicine; but a case in which it was employed much in the same fashion, and with results similar to ours, by Dr Kent Spender, needs a passing notice. A lady came under his care at Bath in January 1883, suffering from psoriasis. Her first attack, which had occurred five years previously, had been very successfully treated by the internal administration of tar in capsules, and she had remained quite healthy up to the date mentioned, when she had a fresh seizure, not in any way ameliorated by the same remedy. She was treated by Dr Spender in various ways without any marked change in her condition, till about the end of November, when she suddenly became very much worse, and a state resembling that presented by our first case supervened. On December 1st, one-twelfth of a grain of tartrate of antimony was added to each dose of a mixture containing acetate of potass and colchicum, which she took every six hours. This being well borne, one-sixteenth of a grain was directed to be taken every two hours during the day. The larger dose was commenced on the 3rd December and continued till the 10th without any unpleasant consequences, when the quantity was gradually diminished. On the 7th December, six days after antimony had been first given, a slight improvement already noticed became very marked, and continued without intermission till December 18th, when she left Dr Spender's care practically well. In this instance the progressive advance from psoriasis into general exfoliative dermatitis was described as characteristic.[1]

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[1] Mitchell Bruce, *Manual of Materia Medica and Therapeutics*, 6th ed., 1888, p. 115.

[2] Lauder Brunton, *Pharmacology, Materia Medica, and Therapeutics*, passim.

[3] *Journal of Physiology*, 1878.

The most recent observation regarding the action of antimony is one by Mr Malcolm Morris,[2] who expresses the opinion that it is in the cases in which there is a functional nervous cause that antimony is likely to be of use.

CASE I.—Psoriasis inveterata, passing into general exfoliative dermatitis, and after the failure of other remedies, completely cured by the administration of antimony.

George D., æt. 17, shale miner. A lad who had always been strong and healthy till his present attack began, and with a family history which exhibited no special peculiarities. He was well grown, well fed, a total abstainer, but perhaps smoked rather much. Except the integumentary, all the other systems were normal. The eruption for which he sought advice at the Skin Department of the Royal Infirmary, on the 3rd October 1891, first attracted his attention about the beginning of September of that year. He stated that it was earliest noticed at the roots of the nails of both hands, though it may have previously existed on the scalp, where, however, it occasioned little or no inconvenience. On the nails and hands it consisted of small red dots, which ran together, becoming white and mealy like on the top. It next affected the arms, which were very itchy, so that he scratched the spots, causing them to bleed. In course of a week it had advanced all over the palms. Within a fortnight the same sequence of events occurred on the face, trunk, and lower limbs. He was admitted through the kindness of Dr Wyllie to Ward 31, and remained there till the 13th October, when he was transferred to the new wards for Skin Diseases. When first seen his condition was as follows:—The hands were swollen, cracked, and bleeding, the palms in particular being covered with masses of thickened, brownish-yellow, horny epidermis. The nails were diseased at their matrices, were claw-like, and worm-eaten at their bases. This rendered him quite helpless, and he presented a truly pitiable appearance. On the arms, the elbows being specially involved, were patches of eruption consisting of brown crusts about a third of an inch thick, seated on an inflamed area, the areola of inflammation extending a quarter of an inch beyond the crust, and gradually fading into the surrounding unaffected skin. On the scalp there were numerous thick, dry crusts, matting the hairs together. On the forehead the condition looked more eczematous, being made up of ill-defined reddish areas, covered with thin brownish or whitish crusts. On the ears there was an eruption of small scattered papules with silvery scales. The margins of the eyelids were reddened, swollen, and crusted, and the commissures of the lips were similarly affected. On the trunk was a copious eruption of psoriasis punctata, while on the legs, and especially below the patella, were several large patches with wide inflammatory areolæ, bearing thick masses of brown crust presenting a laminated arrangement. The soles of the feet were attacked in the same manner as the palms, the epidermis being enormously thickened, brown, dry, and fissured. The general appearance was, therefore, that known as psoriasis inveterata, characteristically depicted in Tafel 27 of Neumann's *Atlas der Hautkrankheiten*, in which the silvery scales are to a large extent replaced by those in which the keratine has undergone a dark brown transformation.

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[1] *Practitioner*, March 1885.

[2] *Year-Book of Treatment*, 1892.

Under the use of boracic starch poultices the epidermic accumulations became loosened and separated, leaving the subjacent parts smooth, but swollen and vividly red. On the 13th October the diseased portions were directed to be enveloped in rags soaked in a lotion composed of dilute glycerole of subacetate of lead, as recommended by Dr Stephen Mackenzie.[1] This treatment kept the skin soft, but did not prevent the decomposition of the epidermic masses which rapidly re-formed, so that a fœtid odour exhaled from the surface. To counteract this some boracic acid was added to the lotion, and he took warm boracic baths.

On the 19th October the swelling of the hands had slightly diminished, but the skin was still very red, and the diseased condition tended to spread continuously over the face and chest, where there were previously only isolated patches of psoriasis. On the 20th October he had a rise of temperature, apparently due to influenza, then prevalent, checked by acetate of ammonia with salicylic acid. The temperature resumed its normal course on the 23rd. Till the 30th October the boracic baths were continued, when alkaline ones, containing carbonate of potass, were substituted. After these baths he was anointed with purified whale oil, selected for this purpose on account of the penetrating properties which have been ascribed to it. This, though continued for some time, produced no amelioration,—indeed, the dermatitis steadily advanced, and by November 17th had become almost universal. At this date, after the alkaline baths, instead of whale oil an ointment composed of oil of cade, tincture of quillaia, and glycerine of starch was employed. A slight improvement for a time seemed to take place under this treatment, but this was not maintained, and great tension of the skin was produced, so that the eyes could not be entirely closed, or the mouth shut with comfort, and there was difficulty experienced in flexing the limbs. To obviate any danger or inconvenience from the ectropion, boracic starch poultices had to be applied from time to time; these had at least a temporary effect. The skin was at this time extremely itchy, and was scratched to such an extent as to occasion very considerable bleeding. From the 28th November till the 26th December a mixture containing acetate of potass, tincture of nux vomica, and succus scoparii was prescribed, and was regularly taken without any perceptible effect on the skin, or on the secretion of urine, either as regarded its quantity or the amount of urea excreted. On the 9th of December vaseline was substituted for the ointment of oil of cade, and its employment as an application to the integument after a bath was thenceforward continued throughout.

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[1] *British Journal of Dermatology*, vol. i. p. 298.

Up to this point it will be observed that his condition, in spite of all treatment hitherto adopted, had become progressively worse. On the 26th December the skin over the whole body was vividly red, swollen in many parts, here and there tended to crack, and unless kept well anointed with vaseline, the outer layers of the epidermis peeled off incessantly in thin flakes; his state was now that of general exfoliative dermatitis in its most marked and complete form. A new feature, too, had developed, he had become extremely sensitive to cold, shivering when his skin was exposed even for a short time for examination in the usually well-heated ward. This was undoubtedly due to the rapid cooling of the blood in the dilated superficial vessels. He had not previously suffered much from cold before his attack, nor did he in the earlier periods of it. He was at this date placed on tartrate of antimony, one-eighth of a grain being administered every six hours. On the 7th January 1892 the skin of the face had become decidedly paler, and the infiltration was so nearly gone that the eyelids and lips could be easily and entirely closed. The integument of the chest was a pale red, little if any thickening remaining, but the pruritus had not wholly ceased, as there were still evidences of scratching. The same improvement had manifested itself on the legs, the soles and the palms were nearly normal, but the baths and subsequent inunction with vaseline were still employed, as without them there would yet be much flaking off of epidermic scales.

Passing on to the 12th February, a great change for the better could be noted. The head and neck might be said to be normal,—in fact the face was somewhat paler than was natural. The skin of the hands both on the palm and dorsum was healthy in appearance and texture; the nails had resumed their ordinary aspect as regards polish and consistence. On the arms there were still here and there reddish blotches; the chest, back, and abdomen were smooth, yet rather pinker than is customary. On the thighs a reddish mottling predominated, on the dorsum of the feet were some scaly patches, the soles were sound. Latterly the bath and inunction had only been required once in two days, to keep him perfectly comfortable. The itchiness had now quite ceased, he experienced no sense of chilliness on exposure, while his general health, appetite, and capacity for sleep were excellent. On 26th February the skin presented only here and there faintly pinkish macules. These were most pronounced on the shin. The hair was growing thickly, though still slightly scurfy at roots. The scalp was freely movable. On the front of the arm in the bend of the elbow there were a number of very small flat pink papules, slightly but perceptibly elevated, and bearing silvery scales, exactly resembling those seen in a commencing psoriasis of moderate degree of intensity. The antimony was discontinued on March 7th, and on March 9th he was sent to the Convalescent House as cured, there being then no visible traces of disease.

It should be noted that the improvement consequent on the antimony commenced by a general diminution of redness, but this was not everywhere equally perceptible. Thus on the face—after the scalp, the forehead, and the greater part of the surface were quite of a natural hue—an erythematous blush was conspicuous on the bridge of the nose and malar portions of the cheeks, which faded by degrees till it finally vanished. On the arms also the paler portion seemed to chase away the still persisting islets of redness, infiltration, and scaling, these latter day by day becoming smaller and smaller, till they too ultimately disappeared.

The urea was estimated from time to time by Dr James Mowat and Dr Coleman Moore. It showed considerable variations both before and after the administration of antimony. The only conclusion admissible was, that antimony did not exert any marked influence whatever on the amount excreted; for on several occasions, both before and during the administration of antimony, the quantity excreted rose and fell unaccountably. Nor was the quantity of urine perceptibly affected in his case by antimony.

The temperature was carefully taken morning and evening while in the Infirmary, and was to an appreciable extent modified by antimony. For purposes of comparison the course of the disease may be divided into three periods. First, that during which he suffered from psoriasis only; second, that of exfoliative dermatitis previous to the administration of antimony; third, from the commencement of the exhibition of antimony to the date of his discharge, cured. In the first period, that of psoriasis, the mean temperature was 98°; in the second, the mean was 98°·5; and in the third, 97°·6. From these averages, which are taken from periods of very considerable duration, it is fair to conclude that the dermatitis elevated the mean temperature, while antimony reduced it to or below a normal level, and this apart from any observable functional disturbance whatever. But we have no data from which to determine what was the average normal temperature of George D. in health. During all the period he was under observation he suffered from some degree of dermatitis, for the psoriasis with which he was affected may have raised his temperature slightly, and antimony may have merely reduced it to what to him was natural. Hence our conclusions are not at variance with the opinion of those who hold that antimony does not reduce temperature in health. Only once did the antimony apparently disagree—he felt slightly sick one day, and it was discontinued for twenty-four hours, then resumed, but this may not have had any connexion with the drug.

The result in this case may be considered highly satisfactory when compared with that obtained in similar ones treated differently. Thus in four cases, two mentioned by Dr Buchanan Baxter,[1] and two recorded by Dr Stephen Mackenzie,[2] of exfoliative dermatitis supervening on psoriasis, one recovered after several months, another got rid of his dermatitis in five months, the psoriasis persisting, a third had improved in a similar period, while the fourth died.

CASE II.—Exfoliative dermatitis, tending to spread rapidly, completely cured by the employment of alkaline baths and the exhibition of antimony.

John T., æt. 70, joiner. Admitted to Ward 37 on February 18th, 1892, suffering from a localized exfoliative dermatitis. Family history and previous health excellent. He states that he never perspired freely even when hard at work. The disease commenced three months previous to his admission to the Infirmary, by the formation on the right leg of what he termed " blisters," followed by an itchiness and swelling of both knees, accompanied by a dry, scaly condition of the skin of these parts. Shortly after the commencement of the attack he improved considerably, and this improvement was maintained without intermission till about a month before his admission, when a sudden aggravation occurred. No new blisters were formed, but the swelling, redness, and scaliness of the legs became much more marked, the right hand was attacked in a similar manner, then the left, and subsequently both arms. On February 19th, the day after his admission, his state was as follows:—The epidermis of both palms, soles, and heels, and the dorsum of the second and third phalanges of the fingers was very dry and much thickened, especially on the centre of the right sole, where it formed a thick, dry, friable crust, firmly adherent to the subjacent tissue. The integument of the legs was œdematous, pitting on pressure, the surface reddened, cracked here and there, but not oozing, and covered with thin scaly crusts. On the thighs, buttocks, and pubes were numerous branny scales scattered over a pinkish base. On the arms and back of the hands, as far as the termination of the first phalanges, a similar condition prevailed. The rest of the integument was healthy, but was being rapidly encroached upon by the disease. It was curious to observe the very sharp line of demarcation which existed between the more acutely affected areas of skin and the thickened, dry condition existing on the soles, heels, palm, and dorsum of phalanges already alluded to. There were a few excoriations, but itching was not a marked feature.

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[1] *British Medical Journal*, July 26th, 1879.

[2] *British Journal of Dermatology*, July 1889.

He was ordered an alkaline bath of short duration daily, followed by inunction with glycerine of starch, and one-eighth of a grain of tartrate of antimony was given thrice a day. Even already, on the next day, February 20th, the arms were normal in appearance as regarded colour, and the skin smooth though still slightly scaly. The roughness on the back of the hands was nearly gone. The legs in like manner were also much smoother, the œdema had disappeared, and though the hue was yet somewhat redder than natural, and there was a degree of scaliness present, they had improved almost beyond expectation. This improvement was fully maintained; he was quite well on March 2nd, when the antimony was discontinued, and he was discharged on March 5th. The abrupt line of separation between the thickened and scaly epidermis which had previously been so strongly marked was then quite imperceptible. Before and on admission he did not perspire at all; when he left the Infirmary, his skin in most parts presented a normal, and on the legs a slightly increased, moisture.

He reported himself on the 21st March, and was then quite well as regarded his skin, though he complained of some pain after eating, for which lactopeptine and bismuth were prescribed, with regulation of diet.

The temperature was, in this case, on the evening of admission and on three subsequent evenings, a degree above normal, though it fell to the natural level in the morning. On the fourth day after the antimony had been commenced it became normal at night, subnormal in the morning, and this continued for eight days; then something having gone wrong with the steam, and there being no fireplace in the ward, while the external temperature was low, the atmosphere of the ward was for a day extremely cold. He probably was chilled, as his temperature rose a little, and did not quite return to its previous state for three days, one day after the discontinuance of the antimony. With him, improvement began before his temperature fell, but there was no time to make observations as to the course of his normal temperature either before the antimony was commenced or after its discontinuance.

The amount of urea excreted varied within normal limits, apparently irrespective of the antimony, and the quantity of urine oscillated to a still greater extent. No conclusion could be drawn as to either point.

These cases illustrate the effects of antimony when administered for a prolonged and a limited period respectively, and permit certain conclusions to be drawn and some comparisons to be instituted.

1. Antimony lowers temperature in some conditions of the skin associated with hyperæmia and dryness of the surface, to a well-marked extent.

2. So far as our observations go, its influence on tissue waste as estimated from the amount of urea excreted, or on fluid loss by the kidneys, is not, under the circumstances detailed, a noticeable one.

3 It softens the skin, imparting increased succulence to its cells, augments insensible perspiration, improves the nutrition of the integument, diminishes hyperæmia, and lessens the tendency to premature and excessive epidermic exfoliation.

4. While advantageous in the early congestive stage of acute eczema, it is contra-indicated during the period characterized by oozing—the second stage of Brocq, that of rupture of vesicles—though it may again prove serviceable at a later era,—the fourth stage of Brocq, that of successive desquamations. We have found this borne out by our experience of a case of eczema treated with antimony, at present in the ward.

5. If Mr Morris is right, as he probably is, that it is likely to be of special use in cases where there is a functional nervous cause, it may prove of value in diffuse scleroderma, and possibly in myxœdema.

6. As compared with arsenic, authors are pretty generally agreed that the latter is valueless in conditions of the pityriasis rubra type,—whether by this exfoliative dermatitis in its dry forms alone is meant, or if pityriasis rubra pilaris is included.

7. Arsenic restrains the tendency to form bullæ in dermatitis herpetiformis and pemphigus, and sometimes cures psoriasis if stationary or a first attack; but, on the other hand, it may apparently sometimes convert a psoriasis into a pityriasis rubra.[1]

8. Arsenic in some cases renders the skin muddy, dull, and earthy,[2] or deeply pigmented; it may induce the formation of horny warts on the fingers,[3] or thicken the epidermis of the palms, giving rise to a keratosis,[4] which again may pass on to epithelioma.[5] Such results have not so far been found to follow the administration of antimony, nor are such likely to accrue.

9. The action of antimony may be contrasted with that of pilocarpine. Pilocarpine produces a copious perspiration for a brief portion of the twenty-four hours; antimony bathes the epidermic cells continuously in a gentle moisture. Pilocarpine lessens or cures a pruritus in a dry, atrophic, anæmic, senile skin, by flushing the

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[1] Hutchinson, *On Certain Rare Diseases of the Skin*, p. 260.

[2] Hutchinson, *Archives of Surgery*, vol. i. p. 76.

[3] *Ibid.*, Plates xviii., xix.

[4] Pringle, *Brit. Journ. of Dermatology*, vol. iii. p. 392.

[5] *Journ. of Cutan. and Ven. Dis.*, 1888, p. 344.

emunctories, but its rapid stimulant effect is not suited for cases of active hyperæmia, which, as has been seen, are more amenable to the influence of antimony. Both, however, improve nutrition, and aid in the deposition or restoration of diminished subcutaneous adipose tissue.

## II.—ON TWO CASES OF VAGINAL HYSTERECTOMY FOR SARCOMA OF THE UTERUS.

By N. T. BREWIS, M.B., Secretary, Edinburgh Obstetrical Society; Lecturer on Gynæcology, Edinburgh Medical School; Gynæcologist, New Town Dispensary; formerly Assistant to late Physician for Diseases of Women, Edinburgh Royal Infirmary.

(*Read before the Obstetrical Society of Edinburgh, 10th February* 1892.)

WHILE to Virchow we are indebted for placing sarcoma on a definite pathological basis, we are under a debt of obligation to two of our most distinguished Fellows for making clear to us the clinical features of sarcoma of the uterus. Prof. Gusserow in 1870, and our President, Prof. Simpson, in 1874, were among the first to elucidate to us the symptoms, physical signs, and treatment of this disease. As far as I know, Prof. Simpson's paper is the only one which has appeared in our *Transactions* on the subject, so I think it is especially fitting that I should record here my unique experience of having two cases of sarcoma of the uterus under my care at the same time.

The following report of the cases, as well as the microscopical sections, have been kindly prepared for me by Dr Aitken Clark:—

CASE I.—Mrs M., a widow, 43 years of age, mother of one child born sixteen years ago, enjoyed good health till June of last year, when a fortnight after her usual menstrual period the flow reappeared, and she felt as if something had "given way." This discharge continued profuse, of a bright red colour, occasionally containing "lumps" for seven days, after which it changed to a "dirty water colour," and at the same time became very offensive, the smell resembling that of a tan-yard. There was no pain. The discharge at her periods previous to this illness had been gradually becoming less.

On August 7th she was admitted into the Edinburgh Hospital and Dispensary for Women and Children, and the following report I received from the Resident, Miss Jessie Macgregor:—

"On admission she was bleeding profusely, and the smell was most offensive. A large friable mass was found projecting into the vagina from the cervix. A considerable portion of this was removed by the hand, and the vagina douched with a strong solution of carbolic acid. Pieces continued to come away for some days, and the discharge had not quite ceased when menstruation appeared on the 29th of August. Three days afterwards a polypus was again felt projecting into the vagina, and two days later a piece the size of a hen's egg became spontaneously detached. On the 9th the os was found dilated and a polypus again protruding. On the 12th as much of the growth as could be reached was removed, and for twelve days the discharge was slight in quantity, and serous in character. On the 25th excessive hæmorrhage occurred, and the tumour was made out as large as ever. On October 1st a large friable mass the size of a closed fist was removed by the ecraseur. Eleven days afterwards the tumour reappeared."

On the 17th, late in the evening, alarming hæmorrhage set in, and Dr J. A. Clark was asked by Miss Macgregor to see the patient. On entering the room the smell was very offensive. The patient was very pale, with a pinched, anxious expression; the brow was covered with cold, clammy perspiration, and every now and again she drew long sighs. The temperature was sub-normal, the pulse was weak—120 per minute. The hæmorrhage was very free. On introducing the fingers within the vulvar orifice a large, soft, friable mass was encountered, which filled the whole vagina, and broke down readily, emitting a very disagreeable smell. At the upper part of the tumour a broad pedicle was felt passing up through the dilated cervix, apparently to the anterior wall of the uterus. The uterine body was large and movable.

Dr Clark kindly sent for me to see the case. I found the patient's condition as described above. I advised that the vagina should be plugged for the night, and that the tumour should be removed next day. Dr Grace Thompson, physician in charge of the hospital, was good enough to ask me to perform the operation, which I did, assisted by her, with the ecraseur and curette, removing the whole tumour down to the base of the pedicle. I was now able to make a thorough bimanual examination, and finding the broad ligaments clear and the uterus movable, I advised extirpation of the entire organ. To this proposal the patient and her friends readily consented. Accordingly, on the 26th October Mrs M. was removed to the Cambridge Street Home for Women, and on the following day I performed vaginal hysterectomy.

The patient was put in the lithotomy position, the vagina was douched with carbolic lotion, a sound was introduced into the bladder and held there; spatulæ held the labia apart, and the uterus was drawn down with a volsella. The anterior fornix was cut through with scissors, and the cellular tissue between the uterus and bladder cleared. The posterior fornix was treated in the same way. The utero-vesical pouch of peritoneum was pinched with sinus forceps, and the opening enlarged to the sides of the uterus. The pouch of Douglas was opened in a similar manner, and a warm antiseptic sponge with string attached pushed through the opening to keep the bowel and omentum, which were easily seen, out of the way. Greig Smith's clamps were tried, but on account of the large size of the uterus, the high position of the broad ligaments, and the narrowness of the pelvis, their application was found to be impossible. I therefore ligatured the ligaments with No. 6 silk in the following manner:—A portion of ligament was grasped in pressure forceps, a ligature passed through a corresponding part of the ligament on a blunt needle was firmly tied, and the ligament cut away close to the forceps. This was done alternately on each side of the uterus, until both ligaments were tied and divided. By alternately ligaturing each side the uterus can be drawn further down, so that the application of the next ligature is made easy. The pelvic cavity was then thoroughly douched with carbolic lotion, and wool impregnated with iodoform was placed over the vulva. The vaginal roof was not stitched, and no drainage-tube was used.

On the evening of the 28th, while being douched, the patient suddenly complained of pain in the abdomen, then she stared, held up her hand, and became slightly convulsed. Unconsciousness followed, and the breathing became rapid and loud. The pulse, which at the commencement of the attack was 84, rose to 160, and her face became bathed in cold, clammy perspiration. The pupils were equal, and reacted to light. Restoratives were applied, but she continued in the above state for three-quarters of an hour, then she vomited coffee-ground material and gradually recovered consciousness.

With the exception of this interruption her recovery was continuous. Three grains of calomel were given at intervals of four hours till flatus passed. Hot antiseptic douches were given every four hours. On the fifth day the discharge became and continued very offensive until the fifteenth day, when the ligatures came away. The bowels moved on the third day. The temperature on the afternoon following the operation rose to 100°, next day it registered 99°·5, after which it became and remained normal. The pulse varied from 100 to 130 during the first three days after the operation. On the eighteenth day the vaginal roof was inspected with the aid of Sim's speculum and was found closed, a portion in the centre about the size of a half-crown piece being covered with a purulent discharge. The patient was allowed to get out of bed a month after the operation, and was discharged on December 20th feeling strong and well.

*Naked Eye Appearance of Uterus.*—Weight, 6¼ oz.; length, 4⅞ in.; breadth at broadest part, 2⅛ in. External os was patulous, and admitted tip of finger. In the anterior wall of the body of the uterus is a small fibroid. On laying open the uterus, the remains of the pedicle of the tumour are seen as a distinct projection of soft consistence on both walls immediately above the internal os. The mucous membrane in the immediate neighbourhood of the pedicle was much injected, but at the fundus it was apparently healthy. The walls above the pedicle were much thickened, the posterior measuring $\frac{7}{8}$ of an inch, the anterior $\frac{5}{8}$.

*Microscopic Examination.*—Sections were made through the uterus at the site of the pedicle and subjected to microscopic examination. They showed a fibro-cellular basis, in which were numerous acini, some of small size, others of considerable dimensions. These were lined by columnar epithelium placed on a homogeneous basement membrane, each cell having a distinct nucleus and nucleolus situated near the base. The cells lining a great many of the acini were undergoing degenerative changes, and in some instances their interior was filled by degenerated cells and proliferating connective tissue corpuscles which had extravasated through their walls.

A portion of the tumour removed by Dr Grace Thompson in September was examined by Dr Bruce (late senior Pathologist to the Royal Infirmary), who said it was a myxo-sarcoma, the myxomatous tissue predominating. He also examined the pedicle of the tumour removed in October, and again pronounced it to be a myxo-sarcoma.

Dr Clark made sections of the tumour—1. Near the base of the pedicle. This section showed remains of adenomatous tissue, with at parts round sarcomatous cells intervening. 2. Further from the base, showing round sarcomatous cells only, the acini being absent. 3. Still further from the base, the sarcomatous cells had in parts disappeared, and were replaced by myxomatous tissue.

Case II.—Mrs D., æt. 49, mother of eight children, the youngest being 11 years old, was recommended to me by Dr Thin, and was admitted into the Home in February 1891 complaining of profuse bleeding. Her menstruation was regular till two years ago, when it ceased for two or three months.

In September 1890 it reappeared; the discharge, which at first was slight and intermittent, soon became persistent and copious. It was odourless, however, and was unaccompanied by pain. Her general health was fairly good. Her grandmother, mother, and some of her maternal aunts, died of cancer.

On examination, both Bartholinian ducts were found distended with pus. The vaginal portion was large, its mucous membrane healthy; the external os was gaping. The body of the uterus was retroverted, enlarged, and freely movable. The sound passed 3½ inches. The interior of the uterus was rough and irregular. Curetting was performed. The scrapings were mislaid, and consequently no microscopical examination was made, but their soft, brain-like appearance was noticed at the time. The patient was dismissed on 24th February feeling well.

On October 30th she was re-admitted complaining of constant discharge of blood. This discharge returned immediately after she left the Home, and was very profuse for about a month; then there was an interval of more than two months during which there was very little discharge, but in July it returned as copious as before, and became distinctly fœtid. There has been complete immunity from pain. The uterus was again found enlarged and retroverted. On introducing the speculum, blood was seen to pour through the dilated os in a constant stream. The smell resembled decayed vegetables. The sound passed 3½ inches; the endometrium felt rough. Curetting was again performed, and the scrapings, which were large in amount and of a soft, pulpy, brain-like consistence, were examined microscopically, and found to contain numerous round and spindle-shaped sarcomatous cells.

The patient consented to have her uterus removed, and this was done on 8th November. The operation was similar to Case I., with the exception that both ovaries were removed; but it was much easier on account of the roomy pelvis. She stood the operation well. Flatus passed on the same evening. The temperature at 8 P.M. on the day of the operation rose to 100°·4, and the highest that it registered afterwards was 99°·8 on the morning of the 9th. The pulse varied from 114 to 130 until some hours before her death, when it could not be counted. The patient continued to progress favourably until the 11th, when she complained of pain over the stomach. The abdomen was uniformly distended, and on palpation there was distinct tenderness in the epigastric region. There was also a limited area of dulness on percussion. In the evening vomiting set in, and the distension became more marked. Several enemata containing turpentine were given, besides castor oil by the mouth, but the bowels refused to act. The temperature did not rise; the pulse, however, became more rapid; retching was more or less continuous, and the patient died next morning. On post-mortem examination, the interior of the abdominal cavity was covered with recently formed lymph, and the intestines were matted together. A little pale coloured fluid was found in the cavity. No mechanical intestinal obstruction was discovered. The vaginal roof was firmly closed.

*Naked Eye Appearance of Uterus.*—External measurement, 4 inches; internal measurement, 3½ inches; weight, 5 oz.

*On section* the interior was smooth, except a small portion in the upper left corner, where the mucous membrane had not been removed by the curette. This had a rough, irregular appearance, a pale yellowish colour, and was of soft consistence. The thickest part of the wall measured an inch.

*Microscopic Appearance.*—A small film of the scrapings put on a cover-glass, dried, and stained with picro-carmine, showed numerous round and spindle-shaped cells. No glands were seen in this specimen, but in a section of the scrapings, hardened in absolute alcohol, and made by the paraffin method, great hyperplasia of the utricular glands was manifest. These were lined by columnar epithelium with a nucleus and nucleolus, and placed in a basement membrane. In some of the glands the cells were in a state of cloudy swelling, and in others they were undergoing degenerative changes. The connective tissue was cellular, and intermingled with, and in some places replacing it were large round cells. A section of the uterine wall showed hypertrophy of the muscular fibres, but was otherwise normal. No mucous membrane was seen, showing that it had been entirely removed by the curette, and had not grown in the interval between scraping and removal.

*Remarks.*—In the above we have examples of the two forms of sarcoma of the uterus—the circumscribed and the diffuse. The ages of the patients were 43 and 49 respectively. Both were parous women. One has been a widow for a number of years, and has had one child; the other was the mother of eight children. One patient had reached the climacteric, and had ceased to menstruate for some time before the disease manifested itself; the other menstruated regularly till the disease set in. In both there was absence of pain.

In the first case narrated—that of the circumscribed variety—what strikes us most is the rapidity with which the disease recurred after removal. The soft, friable, bleeding, stinking tumour was partially removed on August 7; less than a month later it was found to be as large as ever, and the greater part of it was again removed. Nine days after it was found as large as before. After being again removed, it was ascertained to have reached its usual dimensions eighteen days subsequently. On this occasion it was completely removed with the ecraseur, and when I first saw the patient, seventeen days after this operation, I found the vagina occupied with a soft, friable mass the size of my fist, and having the feel of a cauliflower excrescence. This illustrates the recurrent nature of the circumscribed form of sarcoma. On account of the myxomatous character of the tumour this tendency was perhaps more marked in the present case. Portions of the tumour removed on two occasions were examined by Dr Bruce and pronounced to be myxo-sarcomatous, while Dr Clark's sections of the base of the pedicle were found to present the characters of a simple adenoma. We may, therefore, infer that this tumour was originally an adenoma which had undergone myxo-sarcomatous degeneration.

In case No. II. the endometrium was uniformly thickened to the depth of $\frac{1}{4}$ inch by soft, white brain-like tissue, which the curette cut easily through, and which on microscopical examination was found to be made up of round and spindle-shaped sarcomatous cells, the former predominating. The uniform distribution of the disease over the whole of the interior of the uterus shows it to be an exceptionally good example of the diffuse form of the disease.

The result of the operation in this case I deeply regret. First, because if the patient had recovered a recurrence of the disease was very improbable; and, secondly, because I think the fatal termination might have been averted. Death was from septic peritonitis, and the infection was undoubtedly got from patient No. I., who was operated on a few days previously, and from whom there came the copious offensive discharge caused by the sloughing of the broad ligament. The two patients were in adjoining rooms, and if I had kept them farther separate I believe the result would have been different.

With regard to treatment, there can only be one opinion, viz., that as these growths are malignant, the proper procedure is to remove the whole uterus. If such a measure is justifiable in cancer, it is much more so in sarcoma, because in the latter we can almost with certainty remove the whole disease, because it is in most cases limited to the uterus. As soon as the diagnosis has been made by microscopical examination of the scrapings, the interior of the uterus should be emptied with curette or ecraseur, and then the entire organ should be extirpated. Repeated removal of the tumour is only palliative, and does not save the patient from death, which sooner or later ensues from the exhaustion brought about by the continued discharges.

In a paper which I read before the Society last year on "Vaginal Hysterectomy for Carcinoma of the Cervix," I eulogised the use of clamps for securing the broad ligaments. In the case there narrated the clamps answered well, but in those recorded to-night I found it necessary to tie the broad ligaments with silk. I could not apply the clamps because the uteri were enlarged, and the upper margins of the broad ligaments could not be reached by the fingers. Still, whenever practicable I would use the latter, because with them the operation is shorter and easier, and there is less danger of shock afterwards. In neither case did I stitch the vaginal roof nor use a drainage-tube. I do not think the former procedure is necessary, and frequent irrigation appears to me to answer better than drainage. In both of the cases there was great shock after the operation—shock more profound than one is in the habit of seeing after abdominal hysterectomy. The convulsive seizure which is narrated in Case I. two days after operation, and which ended in recovery after the vomiting of coffee-ground material, I attribute to shock. These symptoms, I am told, are not uncommon in the shock following severe accidents. On the fourth day after operation in the same case the discharge became copious and very offensive, and continued for several days without giving rise to any constitutional disturbance. The smell is due to the sloughing of the cut ends of the broad ligaments, which have been strangulated by the ligatures. The wonder is that there is no absorption of this putrid material, which must be in contact with the peritoneum. After the ligatures came away, which they did "*en masse*" on the sixteenth day, the discharge and smell ceased.

To Drs Russell and Bruce I am much indebted for their valuable advice regarding the microscopical sections; and to Drs Thompson, Thin, Macdonald, and Clark for kind assistance at the operations.

## III.—NOTE ON TWO CASES OF CEREBRAL HÆMORRHAGE.

By FRANCIS D. BOYD, M.B., M.R.C.P.E., Clinical Assistant, Royal Infirmary, Edinburgh.

(*Read before the Medico-Chirurgical Society of Edinburgh, 6th April* 1892.)

I VENTURE to bring the two following cases before the Society, as they seem to me to show some points of interest and peculiarity —the first, in the co-existence of a large hæmorrhage into the substance of the brain on left side, with a subpial hæmorrhage on the right side; and the second, in the co-existence of cerebral hæmorrhage and meningitis.

CASE I.—J. F., age 65; admitted to Ward VI. of the Royal Infirmary from the eye wards. His wife stated that six days before admission he complained of not feeling well. He said he felt heavy and dizzy in the head. He had been previous to this in perfect health, save for the condition of the eyes, for which he was under treatment at the eye wards. He was at that time quite coherent in his speech. He had always been a temperate man, and, with the exception of rheumatism, had always enjoyed good health. He was taken into the eye wards to have a small operation performed on the eye; but during the first night there he became very restless, getting out of bed. On this account he was sent to Ward VI.

*Notes on Admission.*—Patient is an old man with arcus senilis well marked. Superficial veins of the face are dilated and prominent. Temporal arteries visible and tortuous. He lies on his back with his mouth half open, and a vacant expression on his face. He seems to understand questions, but answers quite incoherently. Temp., 100°·6. Respiratory system shows slight emphysema; otherwise normal. Sounds of heart are very weak; no murmurs. Pulse 90, very weak; no marked arterial degeneration. Sensibility seems normal on both sides of body. There is slight loss of motor power in the right arm and leg. Plantar reflexes are exaggerated on both sides. Patellar tendon reflex slightly more marked on right side than on left.

On *April 28th* patient had become quite incoherent, and did not seem to understand when spoken to. There was then marked loss of sensation in the right side of the face as compared with the left.

He was too comatose to mind prick of a pin on other parts of body. There was now slight rigidity and contracture in the right arm; arm was flexed at the elbow, etc., but this could be overcome with slight amount of force.

*April* 29.—Unconsciousness has deepened. Pulse 120, very weak; temperature up to 105°. Contracture and rigidity more marked in right arm; present also in left. Still responds to prick of pin about face.

10.30 P.M.—Coma deepened. Contracture and rigidity quite gone from right arm; it is now completely paralyzed. Contracture and rigidity more marked in left arm.

Patient died on the 30th, temperature before death going up to 107°. He developed no new symptoms.

*Post-mortem.*—The following condition was found:—The pia was separated from the brain over three-fourths of vertex, and contained excess of cerebro-spinal fluid. There were senile atrophic points in the pia over the vertex. There was blood under the pia on the right side, which extended over the parietal and occipital lobes, and was diffuse. On the left side there was a small subpial hæmorrhage, dividing the parietal from the occipital lobes.

On section a large hæmorrhage into the left side of the brain was found. It occupied a point just posterior to the upper part of the lateral ventricle, and a small rupture in the ventricular wall had allowed blood to pass into the ventricle; but it is doubtful if much blood had passed into the ventricle during life. The posterior half of the internal capsule was pressed upon. The clot in the brain was firm and hard. The vessels at the base of the brain were dilated and atheromatous.

CASE II.—D. M'D., age 34; single; a miner. Admitted to Ward VI. November 24, 1891, complaining of "severe pain in the head," which had commenced on the morning of November 23. From that time his mental condition had been peculiar. He said he was getting blind, and seemed to be "off his head."

*On Admission.*—He complained of severe frontal headache. Was sick, and vomited after admission. Very restless; in a low muttering delirium. Could be roused, and then answered questions coherently. Pupils normal, and react to light. Skin reflexes exaggerated. Patellar tendon reflex well marked. No paralysis anywhere. No physical signs of disease in chest or abdomen. Bowels constipated. No splenic enlargement. Temperature normal. Pulse 72, of good quality. Urine normal. Well-marked sores on penis. Ordered large doses of iodide with bromide of potash; ice to head; purgative.

*November* 26.—Pupils are now enlarged, and do not react to light. Is very restless, and not so easily roused; does not complain so much about his head. Pulse 64; temperature in the evening, 101°.

*November* 27.—Restless as yesterday, but to-day the pupils react to light. Blistered behind the ears.

*November* 28.—Temperature down to-day to 99°·6. Seems more unconscious. Pulse up to 108 per minute.

*November* 30.—Temperature keeping about 100°, but pulse has gone steadily up. Is more comatose, and cannot be roused. Pulse 140, small and weak.

Dr George Mackay kindly examined the eyes, and gave me the following report:—"Pupils are dilated, and do not react to light. Discs are compressed and retinal veins full, but there is no actual papilitis."

During the day the patient remained much in the same condition. He was evidently dying, but what was the exact intracranial condition, and could one do anything more with a view to saving his life?

As regards diagnosis, it seemed to me that the patient was suffering from compression, which was progressive, and that the compression was basal. The constipation; the condition of the pulse, abnormally slow at first, gradually increasing in rapidity without corresponding increase of the temperature; the condition of the pupils, dilated and insensitive to light, the optic discs showing congestion, the advancing coma, all seemed to point to this. But to what was the compression due? Was it hæmorrhage? The absence of paralysis, the condition of the temperature, the co-existence of headache with delirium, the early optic neuritis, the vomiting in the early stage of the affection, and the age of the patient, though none of these taken singly would negative cerebral hæmorrhage, still the combination seemed to point more to a basal meningitis with effusion.

This being the case, the clear indication seemed to be to open the cranial cavity, and, if possible, relieve the compression. Mr Caird kindly saw the patient in the evening, and trephined over the left temporo-sphenoidal region. On opening the dura mater about ℥iv. of clear serum welled up into the wound and overflowed. After the operation the pulse fell from 140 to 104 per minute, and became fuller and softer.

On the following day the patient seemed slightly improved. He had never shown consciousness, however, though the pupils reacted to light. He was swallowing better. Ordered stimulants, etc. Towards the evening, however, the condition grew worse, and he began to show symptoms of congestion and œdema of the lungs, with heart failure. He died on the night of December 2, forty-eight hours after the operation.

Post-mortem examination disclosed the following condition:—Brain weighed 3 lbs. 4 oz.; there was excess of fluid at the base. There was meningitis present at the base, as shown by a gelatinoid thickening of the membranes. The vessels at base were normal; no tubercle visible.

There was a large hæmorrhage into the occipital lobe on the right side, which had burst into the right ventricle, and seemed to be of some days' standing. No recent hæmorrhage. Microscopic examination of the vessels disclosed no abnormality.

The occurrence of two independent hæmorrhages into the brain, as in Case I., is a comparatively rare condition. We have here a very good clinical example of the effects of pressure on the internal capsule: first, paresis, then rigidity, and as the pressure gradually increased, complete paralysis. On the opposite side we have the effects of a small superficial lesion, giving rise to symptoms of irritation, as shown by the contracture on the left side, which came on thirty-six hours after the rigidity on the right side.

The second case seems, as far as I can discover, to be an almost unique one, as I can find no records of a similar co-existence of meningitis with cerebral hæmorrhage, the two being apparently independent of one another.

The history seems to point to the hæmorrhage having taken place on the 23rd. He then complained of getting blind. Had he been examined, homonymous hemianopsia would probably have been discovered. Examination of the vessels, both naked-eye and microscopic, gave a negative result, though the fact that the patient had syphilis would lead one to think that there had probably been some syphilitic arterial degeneration, and that the vessel had given way at the weakest point.

What was the cause of the meningitis? No tubercle could be found, and no evidence of tuberculosis in the other organs. Some observers hold that all non-traumatic meningitis is due to tubercle, but my experience does not bear this out. During the epidemic of influenza we had in Ward VI. a case of basal meningitis, which undoubtedly came on during an attack of influenza; and at the post-mortem no evidence of tuberculosis could be found either in the brain or in the other organs.

The theory of this case which I would venture to suggest is that, in the first place, there was meningitis, possibly due to influenza, with accompanying cerebral congestion; and that during this congestion the vessel within the brain gave way at a point weakened by disease, the disease being possibly a syphilitic periarteritis. A point which I think is worthy of note in this case is, that though the intracranial pressure was suddenly relieved, there was no fresh hæmorrhage. My only regret is that the patient was not trephined earlier. He died of cardiac failure and œdema of the lungs. If he had had a better constitution to work upon, he might have been another feather in the cap of cranial surgery, and, instead of dying, been living, cured of his disease.

# IV.—NOTES ON A CASE OF PAROXYSMAL METHÆMOGLOBINURIA.

By A. Lockhart Gillespie, M.B., M.R.C.P.E., Medical Registrar, Edinburgh Royal Infirmary.

(*Read before the Medico-Chirurgical Society of Edinburgh*, 6*th April* 1892.)

Last winter Dr Muirhead kindly asked me to examine a case of paroxysmal hæmoglobinuria, which had been lately admitted into Ward 29. I have now the pleasure of laying some notes of the case before the Society.

George M'V., aged 26, married, a hawker, was admitted into the Edinburgh Royal Infirmary on November 25th, 1890, complaining that his urine became at times very dark coloured. With a precarious employment, a poor home, often too scanty a supply of food, his experiences of life had not been of the happiest; he, however, had not indulged overmuch in liquor, and had enjoyed reasonably good health up to two years before admission into hospital. About that time he noticed that he became more prone to take cold; that if he were chilled in any way he was seized with a rigor; his urine, however, was normal as yet. These attacks grew more and more severe, and were accompanied by the passage, for a few hours after an attack, of dark porter-coloured urine. His description of a severe attack was as follows:—On going out on a cold day he would suddenly become chilled all over, benumbed, with acute pain in the stomach region, so acute sometimes as to double him up; he would then eructate much wind, with great relief to himself. During the attack he felt giddy, but never fell, while his testicles were retracted and his skin muscles contracted, causing a condition of goose-skin. There never was any pain over the kidneys.

His first severe attack occurred when he was watching some races at Powderhall on a very cold day,—he was not sure of the date, probably in spring 1890,—while since then he has passed blood in the urine once or twice every week. He does not appear to have had syphilis, nor has he ever been abroad. There was no correspondence, as far as I could ascertain, between drink and the disease.

*Condition on admission.*—A very small, badly-developed man, miserably nourished, height 4 ft. 10¾ in., weight 6st. 9 lbs., obviously anæmic. Physical examination revealed no abnormality, his tongue was a little flabby and furred, his bowels slightly costive. Analysis of the urine on admission gave the specific gravity as 1024, reaction acid, no albumen or sugar, urea 7·4 grs. per ounce, or the amount of urine being 36 ounces in the twenty-four hours, 266·4 grs. on a hospital diet. Temperature normal.

*Progress.*—The day after admission he was sent out for a walk; the weather happened, as usual, to be bad, and he came in with a temperature of 100° Fahr., reporting that he had not been long out before he began to shiver. On his return he passed some very dark urine. It was at this stage that I was asked to examine the case more carefully, and was given a sample of the dark urine passed the day before for analysis. As the urine passed during the attack had been mixed with the urine previously passed, I contented myself here with a determination of the pigment. On examining it with the spectroscope, I found the four bands which are characteristic of acid hæmatin, and which further were not reduced to the one broad band of reduced hæmoglobin on the addition of a small quantity of ammonium sulphide. There were no blood corpuscles or casts, and the fluid, which was faintly acid, deposited only a small quantity of dark granular debris.

For six days after this attack the patient was kept quietly in bed, and was given ʒj. doses of the liquid extract of ergot every eight hours. On the sixth day I tested his urine and examined his blood. The urine was 1016, acidity ·1008 per cent. (reckoned as HCl), no albumen, sugar, or blood, urea 107·5 grs., no deposit; while the blood contained 3,100,000 red corpuscles, which were irregular and crenated, some having vacuoles in them. The white corpuscles, 100,000, were above the normal. The amount of hæmoglobin present was 65 per cent., that is, the proportion per corpuscle was $\frac{65}{62}$, or 104·8 per cent. On the 4th of December, two days later, the examination of the blood showed that the number of red corpuscles had increased to 3,370,000; the hæmoglobin was 63 per cent., or 93·4 per cent. per corpuscle. The pigment present was oxyhæmoglobin, the red corpuscles were from 6 to 8 $\mu$ in breadth, no very small ones, but some tailed and others crenated. White corpuscles 20,000. Plates numerous.

The urine for the day before contained 8·4093 grs. of urea per oz., or 319·55 grs. per diem, had a specific gravity of 1021, a deposit of mucus and oxalates, and an acidity of ·18 per cent. HCl, or ·06624 gram. of HCl in the day.

The urine of the 4th contained 5·8325 grs. of urea per oz., or 225·3 grs. altogether, the specific gravity was 1020, acidity ·054 per cent., or ·0216 gram. of HCl per diem; there was a deposit of phosphates and mucus.

On the 5th he was allowed up and about the ward, and on the 6th the red corpuscles numbered 3,080,000, the white 10,000, the plates were not so numerous, while the red corpuscles, measuring from 6 to 10 $\mu$, were larger, and were neither tailed nor crenated. The hæmoglobin was 63 per cent., or 103·2 per corpuscle. Urine: sp. gr., 1020; acidity, ·126 per cent., or ·05796 gram. per diem; urea, 7·0726 grs. per oz., or 325·33 grs. Oxalates present; no albumen or blood.

*7th December.*—He was up all day yesterday. He had some slight diarrhœa, his bowels moving thrice. The urine was more concentrated; sp. gr., 1024; acidity, ·216 per cent., or ·07344 gram.; urea, 12·221 grs. per oz., or 415·514 grs. per diem.

*8th December.*—Up all yesterday, but not allowed out. Blood analysis shows the number of red corpuscles to be 3,990,000, the hæmoglobin 55 per cent.; proportion per corpuscle, 68 per cent.; white corpuscles 12,000; plates more numerous. The red corpuscles were from 7 to 10 $\mu$ in size, some were mere phantoms with only the outer envelope, and were discoloured, but of full size; one or two corpuscles were tailed, none crenated. Urine: sp. gr., 1020; acidity, ·108 per cent., or ·05832 gram.; urea 6·911 grs. per oz., or 373·194 grs. per diem. No albumen or blood.

*9th December.*—Urine: sp. gr. 1020; acidity, ·144 per cent., or ·06048 gram.; urea, 7·0972 grs. per oz., or 298·0824 grs. per diem. Patient had been out for a short time the day before, but did not feel cold; temperature, 54° Fahr.

*10th December.*—Yesterday he was sent out for most of the day somewhat thinly clad; on coming home he passed a few drops of dark-coloured urine, which were unfortunately mixed with the day's total. He neither felt the shivering nor the malaise which had formerly occurred. His temperature rose in the evening. Blood analysis: Red corpuscles, 2,200,000, from 4 to 7 $\mu$ in size; many more were irregular than in the last counting; none, however, tailed or crenated. No large ones seen, but many (about 60,000) small, colourless, ill-defined corpuscles, which were neither granular nor refracting. No pigment granules seen. Hæmoglobin, 70 per cent., or 159 per cent. per corpuscle. Spectrum gives only the oxyhæmoglobin bands. Urine, sp. gr. 1022, with a deposit of very small oxalate of lime crystals. Albumen and blood present. The pigment was very dilute, and gave the bands of oxyhæmoglobin, and more faintly those of methæmoglobin. These bands were reduced on the addition of ammonium sulphide. The total proteids were only ·108 per cent., of which the serum albumen formed ·025 per cent., the serum globulin ·083 per cent. The urea, 7·0513 grs. per oz., came to 253·84 grs. in the day; the acidity, ·108 per cent., or ·03888 gram. The liver had been mapped out before, and showed no change; but the spleen was enlarged downwards and forwards, coming forward nearly as far as the nipple line at the level of the eighth or ninth ribs. There was no tenderness.

*12th December.*—He was out again for a short time yesterday, but had no attack. To-day the urine is clear; no blood or albumen; sp. gr., 1017; urea, 6·3054 grs. per oz., or 290·048 grs. per diem; acidity, ·108 per cent. HCl, or ·04968 gram. Blood analysis: Red corpuscles, 3,530,000, size 6 to 9 $\mu$; some tailed, not so irregular as yesterday. White corpuscles, 15,000. Plates as usual. Hæmoglobin, 66 per cent., or per corpuscle 93·4 per cent. The spleen, if anything, is smaller than yesterday.

*15th December.*—Yesterday the day was colder, and although only out about three hours he felt very cold; he did not shiver, however. Temperature up; urine dark red. Blood analysis: Red corpuscles, 2,980,000, of various sizes, from 5 to 9 $\mu$; none tailed or vacuolated, but one or two very shadowy. White corpuscles, 20,000. Plates numerous. Hæmoglobin, 64 per cent., or 107·3 per cent. Urine the colour of port wine, clear, no deposit; sp. gr., 1031; no sugar; acidity, ·162 per cent., or ·08748 gram. per diem; urea, 9·524 grs. per oz., or 514·296 grs. altogether. The pigments present in the urine were oxyhæmoglobin and a trace of methæmoglobin, the lines distinctive of the latter only being visible in a thick layer of the fluid. The proteids present were ·6 per cent., of which serum albumen formed ·25 per cent., the globulin ·35 per cent. His spleen had again enlarged, but was not tender.

On the 16th the hæmoglobin had risen to 70 per cent., the red corpuscles to 3,850,000, or 90·9 per cent. per corpuscle. One or two phantom corpuscles, while the red cells as a rule were smaller but more regular, 4 to 6 $\mu$ in size, forming fairly good rouleaux. Urine: pale, deposit of mucus; sp. gr., 1025; urea, 232·96 grs. in the day; acid, ·03024 gram. No albumen or blood.

Seeing that his blood was in such an unstable condition, I resolved to try the effect of sulphonal on it, so I gave him 20 grs. on the night of the 16th. On the 17th his blood contained 2,930,000 red corpuscles, many of which were phantom; size, 5 to 8 $\mu$; none crenated, many elongated. Hæmoglobin, 70 per cent., or 119 per cent. per corpuscle. Urine contained no albumen or prohæmato-porphyrin, and was normal.

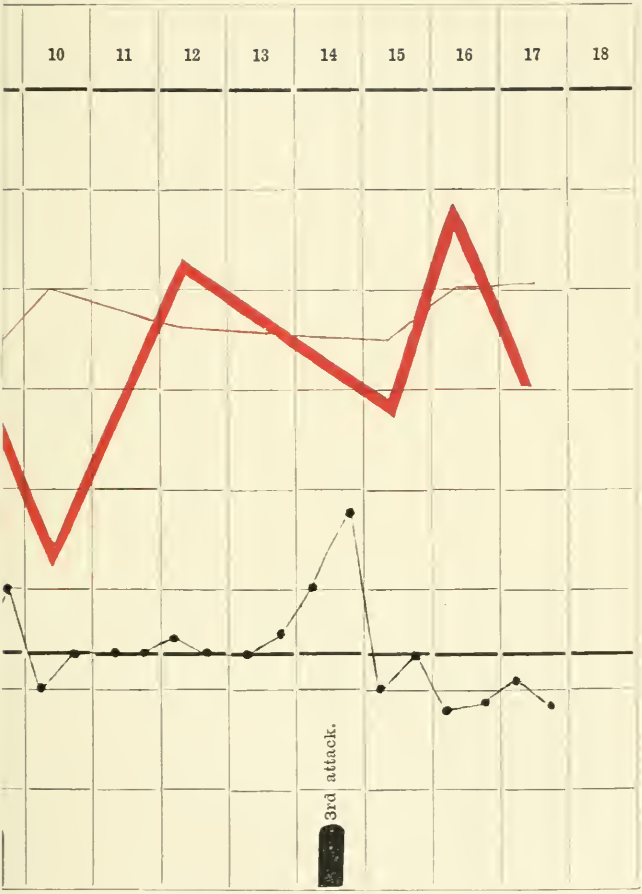
I gave him 30 grs. of sulphonal that night again, with no discoloration in the urine, and 35 grs. on the following night, with a similar want of success. He now expressed a desire to go home, so that I had to stop my observations. On dismissal he felt and looked very much better.

## *Conclusions.*

The points I would particularly draw attention to are—first, the enlargement of the spleen with each attack; second, the fact that the percentage of hæmoglobin did not fall *pari passu* with the corpuscles; third, that the total urea excreted during the day increased on the day of the attack, contrary to what is otherwise affirmed (*Münchener Medicinischer Wochenschrift*, 1888, xxxv., pp. 495, 529, and 535). The proteids, too, merit attention, as does the temperature. The size of the corpuscles, also, varies after the attacks.

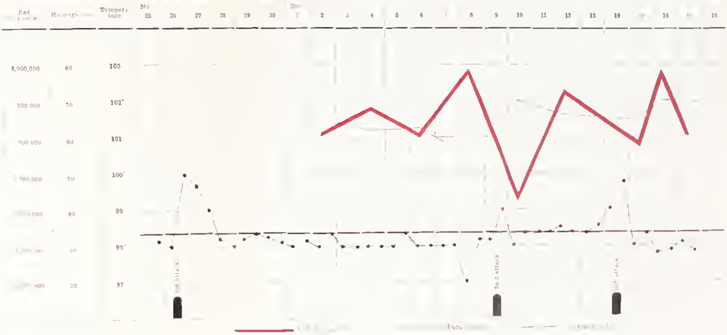
The enlargement of the spleen, which occurred in this case, was coincident with the formation of numbers of young red blood-corpuscles.

Paroxysmal hæmoglobinuria is a local disease and yet a general one. The breaking down of the red corpuscles and consequent setting free of hæmoglobin occurs in the blood. This is shown conclusively by Boas' experiment, repeated by Copemàn, of tying



——————— Temperature.

# CHART I


Red
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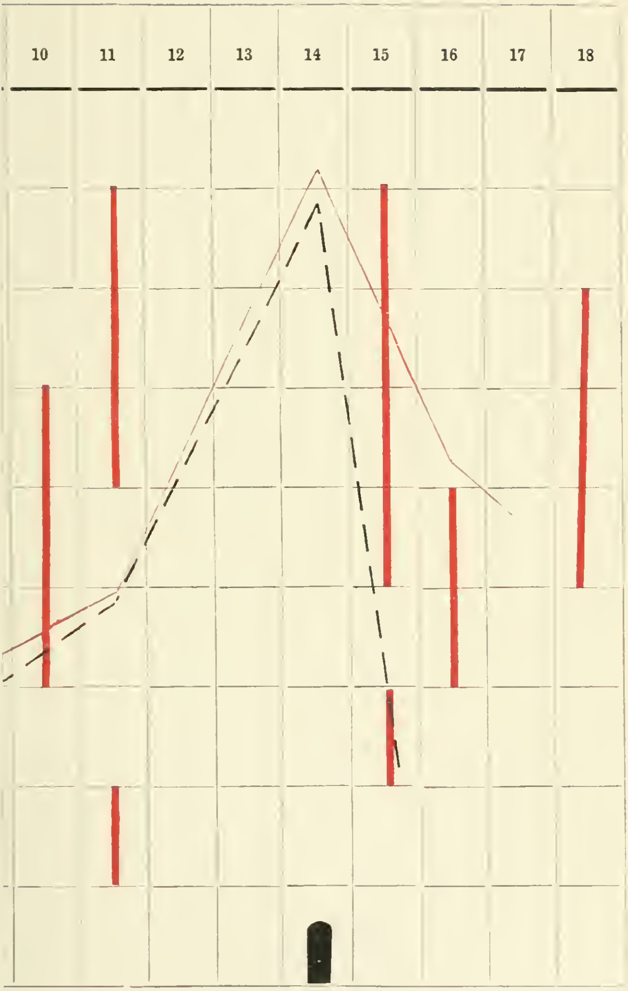
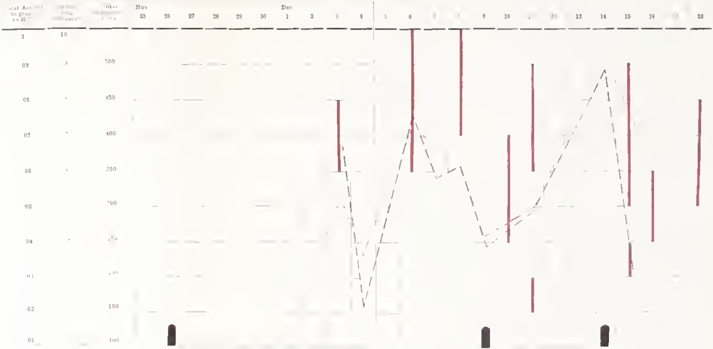
2nd attack



ɔrpuscles.

## CHART II.



[illegible] lines [illegible]
[illegible] the variations in the size of [illegible]
[illegible] the amount in grams of HCl
[illegible]

a ligature tightly round a finger, then dipping the finger into ice-cold water. Examination of the blood of this finger now shows free pigment in the plasma, with a loss of the power, inherent in the red cells, of forming rouleaux. There is little or no general disturbance. If both the hands, however, are placed in iced water for a short time, there is a decided disturbance, and pigment may or may not appear in the urine. Again, it has been pointed out that if a small quantity of hæmoglobin be injected into the blood of a healthy individual, none of it appears in the urine; if a little more be injected, some albumen may make its appearance; but on injecting large quantities, analysis of the urine shows the presence both of hæmoglobin and albumen. So in a case like this, if the disturbance be great and the tale of corpuscles destroyed large, the urine becomes porter-coloured. If the exciting cause be not so severe, only serum albumen and globulin may appear, constituting paroxysmal albuminuria. While on other occasions I believe you may get a slight attack with no striking evidences of it in the urine, a slight rise of temperature and diminution of red cells in the blood would be the only symptoms, along with a slight excess in the normal pigments of the urine. That is to say, then, that the organs of the body—principally, of course, the liver—can get rid of a certain quantity of free hæmoglobin; if the blood, however, be surcharged with it, it is eliminated by the kidney. Whenever sufficient has been excreted to allow the liver to deal with it in the ordinary way, the discharge in the urine ceases.

I will not enter into the subject of the elimination of proteids in the urine without coincident disease of the kidney tissue. It opens too wide a field. Selective affinity, and perhaps change and increase of blood-pressure, may partly account for it. In this case the serum globulin was in excess in the blood and in the urine. In ordinary cases of Bright's disease, the serum albumen is in excess. Excess of globulin over albumen in the urine is said to be due to increased blood-pressure.

Red blood-corpuscles are now formed in great numbers to make up for the deficiency caused by the previous destruction; and if the observation that the spleen enlarges after the attacks is confirmed, it is good evidence that the manufactory of the young cells may take place there.

The variation in the size of the red corpuscles is very instructive, apart from the mere irregularity and vacuolation of many of the larger ones. On reference to Chart II., it will be seen that after the second attack the corpuscles varied from 4 to 7 $\mu$ on the day after, and on the next day from 2 to 3 $\mu$ and from 6 to 9 $\mu$. After the third attack the sizes were from 2·5 to 9 $\mu$. At the end of the considerable period that elapsed between the first and the second attack, the red corpuscles measured from 7 to 10 $\mu$, or about the normal.

I tested the acidity of the urine each time, but with no result, save that as the urea increased so did the acid. Bearing in mind, however, the inverse proportion which always maintains between the acid eliminated by the kidneys and that present in the gastric juice, there is presumably a deficiency of acid in the stomach contents during and for some hours after an attack. This may account for the gastric symptoms detailed above.

With regard to the pigment present, on one occasion I found acid hæmatin, on three occasions methæmoglobin and oxyhæmoglobin, and in two other cases which I have seen, but which I had not an opportunity to examine further, the pigment was methæmoglobin. Copeman explains the presence of acid hæmatin by the action of the acid urine on the methæmoglobin, and asserts that the pigment, as originally secreted by the kidneys, is in the form of oxyhæmoglobin; this soon changes into methæmoglobin in the urine, and if left long enough, into acid hæmatin. Certainly after one of the attacks the urine I examined contained the latter pigment, as sulphide of ammonium had no effect on it, the four bands in the spectrum remaining as before. M'Munn, in 1889, asserted that methæmoglobin was the only pigment he had ever found in such cases. It is also certain, however, that the blood serum itself during an attack is stained not with methæmoglobin, but with oxyhæmoglobin.

The effect of nitrites and of chlorate of potash in inducing attacks has been tried in experiments with negative result.

About the time I was investigating the case, some attention was drawn to the appearance of uro-hæmato-porphyrin in the urine, following on the exhibition of sulphonal and allied hypnotics in large doses. Desirous of testing the effect of this drug on the evidently unstable corpuscles of this patient, I gave him, as recorded above, considerable doses of it each night, but with negative results. The patient, indeed, thought fit to end the treatment by abruptly leaving the hospital. The paper by Copeman in the *Practitioner* for 1890, p. 161, contains a fairly complete bibliography.

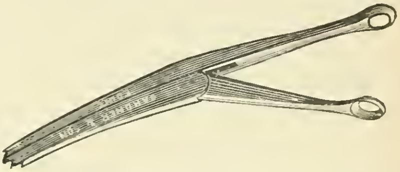
The analyses for the above were made at the Laboratory of the Royal College of Physicians, Edinburgh.

## V.—A NEW FORM OF LARYNGEAL FORCEPS.

By P. M'Bride, M.D., F.R.C.P. Ed., F.R.S.E., Aural Surgeon and Laryngologist, Royal Infirmary, Edinburgh, and Lecturer on Diseases of the Ear and Throat in the Edinburgh School of Medicine.

(*Instrument exhibited to the Medico-Chirurgical Society of Edinburgh*, 22*nd March* 1892).

It is with some reluctance that I venture to add another to the already multitudinous varieties of laryngeal forceps, and I only do so because the instrument about to be described seems to me to present certain advantages of a decidedly practical kind. Neither in the curve of the instrument nor in the joint (of the kind known to surgeons as the crocodile) is there anything of novelty, and I shall therefore confine my description merely to the extremities of the blades. These are circular and fenestrated; each consists of a ring of steel, and the inner margin of this has on either side a cutting edge. As will be seen from the accompanying drawing, the outer margins are bevelled in such a way that they project on every side, and thus prevent anything excepting a projecting growth or body being grasped between the inner or cutting edges. In using Mackenzie or Gottstein's forceps it is always possible to pinch up a portion of healthy mucosa, but with the instrument described this would only be possible were it applied to the ary-epiglottic fold—an accident unlikely to happen in the manipulations of one endowed with even rudimentary laryngoscopic dexterity.



In removing a portion of a malignant tumour for microscopic examination I have found these forceps most useful, as by their aid a piece can be cut, or rather punched out from a projecting surface without the addition of the tearing necessary when Mackenzie's instrument is employed. I have also by their means succeeded in removing a portion of a subglottic growth; but in this case recourse was afterwards had to Voltolini's sponge method, by which the main bulk of the neoplasm was detached. It has appeared to me that an instrument made on a similar principle might be used with advantage to extract foreign bodies from such passages as the œsophagus, trachea, urethra, etc.

## VI.—CONTRIBUTIONS TO THE SURGICAL ANATOMY OF THE BREAST: With a Note of the "Nitric Acid Method" of Studying its Normal and Pathological Anatomy.

(From the Surgical Laboratory of the University of Edinburgh.)

By Harold J. Stiles, M.B., F.R.C.S. Ed., Assistant to the Professor of Surgery, University of Edinburgh.

(*Read before the Edinburgh Medico-Chirurgical Society, 6th January* 1892.)

Through the kindness and courtesy of the Surgical Staffs of the Edinburgh Royal Infirmary and of Chalmers Hospital in supplying me with material, I have, during the past two years, examined over a hundred breasts excised for various diseased conditions. Almost without exception these have been subjected to a careful microscopic as well as macroscopic examination. With such a wealth of material, so generously placed at my disposal, I feel that I incur considerable responsibility, in that it is my duty to give some account of the observations I have had such a favourable opportunity of making. This I have endeavoured to do, firstly, in the Surgical Prize Essay, Royal College of Surgeons of Edinburgh 1891, and subsequently at a special meeting of the Edinburgh Medico-Chirurgical Society in January of this year, when I gave a lime-light demonstration of a series of Photomicrographs (made by Mr Andrew Pringle of London) from preparations I had made to illustrate some further observations regarding the pathology and treatment of carcinoma of the breast. Lantern slides were also shown of photographs of drawings of naked-eye specimens (prepared by what will presently be described as *the nitric acid method*) illustrating the surgical anatomy of the organ. I desire especially to thank Professor Chiene for so liberally providing the surgical laboratory with whatever was necessary to carry out the work, and for the interest he has taken in it.

A knowledge of the pathology and morbid anatomy of the mamma is essential to the correct diagnosis and successful treatment of its numerous diseases. As regards the breast, it is especially important to possess a proper conception of its anatomy under various conditions, in order to understand its pathology and adopt a satisfactory mode of treatment.

The descriptions of the mamma which are to be found in our works on anatomy do not appear to me to meet the requirements of the surgeon. I propose, therefore, in this paper to direct attention to those points in the anatomy of the mamma which are more especially of surgical importance. The methods of studying the breast hitherto employed, namely, by dissection, with or without previous boiling or partial maceration, are neither convenient nor satisfactory. The parenchyma, or gland tissue proper, is so intimately connected with the fibrous framework or stroma, that the two cannot be separated. Again, the breast tissue is not compacted into an encapsulated body, but is so broken up and branched at its periphery that the stroma becomes directly continuous with the connective tissue framework of the fatty superficial fascia. There is, therefore, no "capsule" in the ordinary sense of the term, except, perhaps, during lactation, when, however, the surgeon is seldom called upon to excise the breast. When presented to him for removal, the parenchyma relatively to the stroma and fat is scanty and difficult to recognise. In order to study the anatomy of the mamma a method is required which will reveal and differentiate to the naked eye its various constituents in an undisturbed relation, so that their form, extent, and arrangement may be accurately defined. Such an agent will be found in a mineral acid, especially nitric acid. Nitric acid was first brought under my notice practically by Mr George Brook, while working at the development of the mamma in the Embryological Laboratory of the University of Edinburgh, where he uses a 5 per cent. to 10 per cent. solution as a histological "fixative" for embryonic tissues. Although an admirable re-agent for this purpose, I found, by subsequent experience with it in the Surgical Laboratory, that it was unsuitable for adult tissues which are at all fibrous, as it rendered them too tough for section cutting; and even if one should succeed in obtaining sections, the microscope shows that the fibrous tissue becomes swollen and hyaline under its influence. I have used the nitric acid method for the past two years in the surgical laboratory of the University of Edinburgh, and have found it a valuable aid to the study, not only of the normal and morbid anatomy of the mamma, but also of other tissues and organs, more especially when the seat of carcinoma, or of other new formations. I propose, therefore, to refer shortly to this method before passing to the surgical anatomy of the mamma.

The mode of employing it will vary slightly according to the object in view, and to the way in which it is desired subsequently to deal with the breasts. The principle is as follows:—

1. Wash the mamma in water until all the blood is removed from its surface,—an important preliminary step, since the nitric acid coagulates, and blackens the blood, and thereby obscures the appearances which the method brings out.
2. Submerge in a 5 per cent. aqueous solution of acidum nitricum, B.P.
3. Wash in running water to remove the acid.
4. Place in undiluted methylated spirit.

The *rationalé* of this treatment is that the nitric acid renders all the tissues, except the fat, opaque white, due to coagulation of their albuminous constituents. By subsequently washing in water, the connective tissue becomes translucent, homogeneous, and somewhat gelatinous. Its consistence in bulk is firm, tough, and india-rubber like. The parenchyma, on the other hand, remains more or less dull grayish-white and opaque, due to coagulation of the more highly albuminous epithelial cells. The fat is unaltered. Cancerous tissue behaves in the same way as the parenchyma, and is rendered even denser and more opaque; in very cellular cancers the tissue resembles boiled white of egg, though of a grayish colour. The characteristic arrangement of the parenchyma is generally sufficient to distinguish it from the cancerous tissue.

For anatomical and naked-eye purposes, it is best to place the breast entire, or in thick slices, in the acid solution for twenty-four hours to two or three days, renewing the solution night and morning. By this means the acid penetrates the whole gland, which is then to be washed in running water for twelve to twenty-four hours. It should then be transferred to methylated spirit, which becomes brown, and must be renewed three or four times before it will remain uncoloured. In consequence of the firm and india-rubber like consistence of the stroma, clean and smoothly cut slices may readily be made through the organ; for this reason it is often better not to slice the breast until after it has been treated with the acid. The great advantage which specimens so prepared possess over ordinary spirit preparations is that the structural differentiation which is produced remains permanent. Slices of special interest may be preserved for museum purposes in spirit, and partially embedded in plaster of Paris in flat earthenware jars, covered with a glass circle. In cases of carcinoma, the relation of the tumour to the breast, its exact limits, and the mode and extent of its infiltrations, are clearly demonstrated. Excellent black and white drawings may be made of the appearances, and afford the only illustrations I have seen in which accurate detail and differentiation of structure is shown. It is now a year ago since I first introduced the method into Professor Chiene's operating theatre, and showed how it might with advantage be applied by the surgeon at the time of operation. After using the method for a few months, Professor Chiene desired me to lay it before the American Surgical Association held at Washington in September 1891, where he brought it under the notice of Professor Dennis of New York, who opened the discussion on "Recurrence of Cancer of the Breast." Professor Dennis was good enough to make the communication for me. Since then the method has been given a thorough trial both in America and in Edinburgh, and has proved of real practical value. It is employed at the operation in the following manner:—The breast immediately after its removal is placed (after washing off all the blood) in from one to two pints of the five per cent. nitric acid solution for about ten minutes, and then washed in running water for three or four minutes. By this means the characteristic reaction is produced upon the surface, so that outlying portions of breast tissue, portions of the carcinoma itself, or small locally disseminated cancerous foci can, if here present, readily be detected. The examination can easily be completed before the time arrives for suturing the wound. The surgeon is thus afforded an additional means of ascertaining the limits of the disease and of the organ, and therefore of estimating more satisfactorily than hitherto the extent to which the parts should be removed in order to reach "an atmosphere of healthy tissue."

In by far the greater number of breasts I have examined, the nitric acid method has revealed the existence of lobules of the parenchyma on the surgeon's cut-surface, showing that the whole organ had not been removed. The reason for this will be found to be the result of an imperfect view of the anatomy of the breast. Pathologists are not agreed as to the part played by the parenchyma (when not entirely removed) in the production of "recurrence" after operations for carcinoma. The question is a very important and a very difficult one. I hope to discuss it in a future communication. It must be remembered, however, that although the surgeon's cut-surface may be free from disease, local recurrence may and often does occur as a result of microscopic or small macroscopic cancerous foci beyond the parts removed. In two cases operated on by Professor Chiene I was able to point out to him a speck of cancer, the size of a pin's head, exposed and cut across on the surface of the mamma far removed from the primary tumour. In both cases, by excising more tissue at a corresponding part of the wound the remainder of the diseased focus was removed, as was proved by microscopic examination. Not only in cancers of the breast, but in epitheliomata and cancers elsewhere, I have on many occasions found small outlying diseased areas exposed upon the cut surface of the parts removed. The application of the nitric acid test to parts removed for cancer points strongly to the fact that operative treatment in order to be successful must be more radical than is now the custom.

Having examined the surface of the breast, it should next be sliced, and again treated with the acid, in order that the naked-eye appearances of the gland may be studied. Future microscopic investigation of the parts is greatly facilitated by the above treatment, since, with the naked-eye structure clearly revealed, those portions of tissue can be selected which are most likely to demonstrate special histological points, and in this way much time and unnecessary labour is saved. For the reasons already mentioned, care must be taken that slices from which it is intended that pieces should be taken for microscopic examination are not kept in the acid longer than is necessary to produce merely a surface reaction.

I now pass to consider the anatomy of the mamma from a surgical point of view.

The breast tissue consists of the following elements:—

1. The parenchyma or gland tissue proper.
2. The stroma, or connective tissue framework, which supports the parenchyma, and in which the bloodvessels, lymphatics, and nerves ramify.
3. Fat in and around the stroma.

The relative proportions of these elements vary greatly, especially according to the age of the individual, and according as the gland is, or has been functionally active. Collectively the various constituents form an organ consisting of—

(*a.*) A central part or body (the "*corpus mammæ*" of Henle[1]); (*b.*) peripheral processes.

The mamma of an adult nullipara may be taken as the type of a normal breast (Plate II., figs. 1, 2, 3). In it the corpus mammæ is well defined, and upon this the size and external configuration of the breast mainly depend. In shape it resembles very closely the ordinary bun of the pastry-cook. Its anterior surface is convex, but irregular, due to the processes which are given off from it. The posterior surface is slightly concave and more regular. The circumference is thick and well defined. If the organ be bisected vertically through the nipple in any plane, the section of the corpus mammæ presents a more or less triangular appearance, with the apex at the nipple, and the base separated from the subjacent muscle by a thin stratum of loose and delicate connective tissue. In the fresh state the stroma is tough and compact, but flabby, and of a homogeneous white appearance. The tissue of the nulliparous gland is characterised by its compact arrangement, and this is due to the small amount of fat which it contains and the close apposition of its coarse wavy fibres. Here and there an ordinary circumscribed adipose lobule, similar to that forming the subcutaneous fat, may be detected, but the more extensive admixture of fat throughout the stroma, such as is met with in multiparous breasts, does not occur. Under the nipple and areola the stroma contains no fat whatever; its fibres are loosely arranged, and allow of free mobility of the nipple, as well as of distension of lactiferous sinuses during lactation. On close inspection, the lobules of the parenchyma may with difficulty be detected in the form of more translucent, grayish sago-like grains. In spirit preparations, the breast tissue is quite homogeneous, so that the parenchyma cannot be distinguished from the stroma. In nitric acid preparations the opaque, grayish-white parenchyma stands out in bold relief in the translucent stroma, so that its amount and arrangement can readily be studied. The ducts appear as white lines. They are collected into a bundle running in the vertical axis of the nipple to the summit, where they open by minute separate orifices at the bottom of a small depression. In the loose tissue under the areola they are widened out, to form the lactiferous sinuses and receive small ducts derived from the adjacent gland lobules. As the ducts extend towards the periphery of the gland they become finer and more branched, until finally, on entering the ultimate lobules they are microscopic in size. Some of the branches are prolonged beyond the body of the gland into the peripheral processes. In relation to the ducts, and scattered throughout the substance of the corpus mammæ, are numerous opaque, grayish-white, granular looking bodies from 1–2 mm. in size (Plate II., figs. 2 and 3 *b*). These are the ultimate lobules of the parenchyma, made up of microscopic flask-shaped, or short tubular gland acini opening into a common infundibulum, which leads into a terminal and microscopic duct. These ultimate lobules are aggregated more or less closely into irregular or grape-like clusters of various sizes to form larger or compound lobules, and these again are collected into lobes by the branches of a main lactiferous duct. In this way a compound racemose arrangement is produced—the lobules being much more abundant at the periphery than at the centre of the corpus

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[1] *Anatomie des Menschen*, Bd. ii. p. 549.

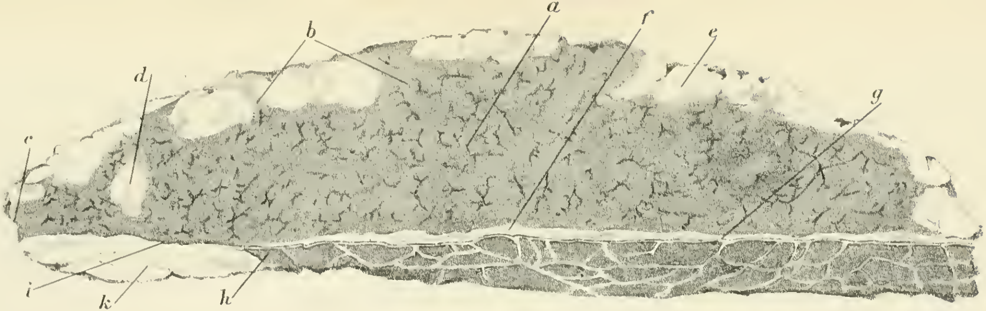

Fig.1.

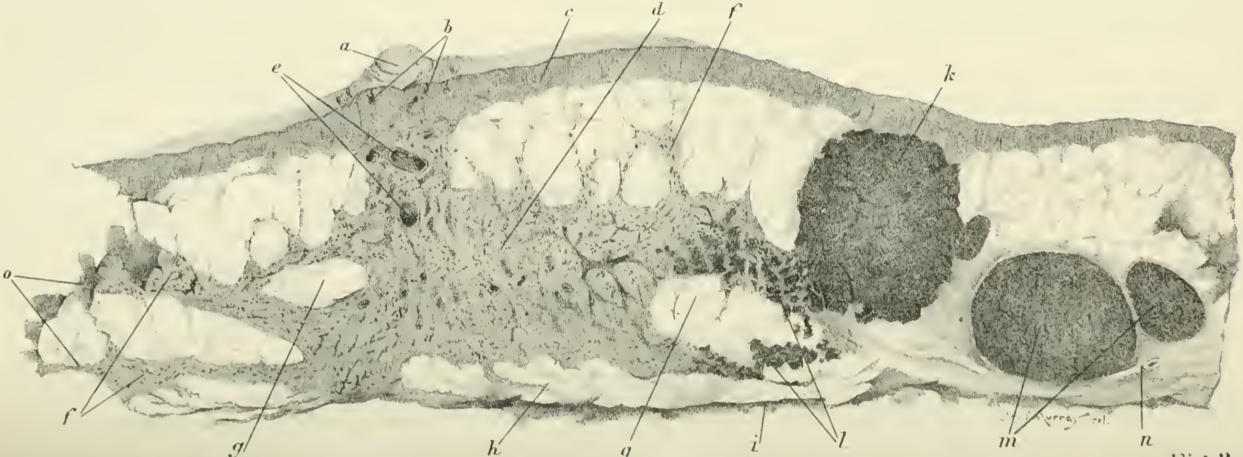

Fig.2.

# DESCRIPTION OF THE ILLUSTRATIONS.

All are drawn, natural size, from specimens treated with Nitric Acid.

## PLATE I. Fig. 1.

Vertical slice a little below the nipple; girl, æt. 18. (Post-mortem specimen. Skin not removed.)

*a.* "Corpus mammæ"—the stroma is compact, and the parenchyma is represented merely by branched ducts.
*b.* Peripheral processes of "corpus mammæ" ending in "ligaments" of Cooper.
*c.* Axillary margin of "corpus mammæ," cut across in removing the organ.
*d.* Intra-mammary fat lobule.
*e.* Subcutaneous fat.
*f.* Retro-mammary fat.
*g.* Pectoral fascia.
*h.* Axillary border of pectoralis major.
*i.* Axillary fascia.
*k.* Axillary fat.

## PLATE I. Fig. 2.

Slice from the cancerous mamma of a woman, æt. 38; married; nine children. The tumour occupied the periphery of the lower and outer quadrant; close to it was a mass of cancerous glands.

*a.* Nipple.
*b.* Sebaceous glands of areola.
*c.* Skin.
*d.* "Corpus mammæ;" parenchyma consisting chiefly of ducts.
*e.* Dilated ducts.
*f.* Peripheral processes of the "corpus mammæ."
*g.* Intra-mammary fat lobules.
*h.* Retro-mammary fat.
*i.* Pectoral fascia.
*k.* The tumour—a typical nodular scirrhus, to which the superjacent skin is tacked down.
*l.* Cancerous infiltration of the adjacent breast tissue.
*m.* Cancerous axillary glands.
*n.* Bloodvessel.
*o.* Surgeon's cut-surface (sternal edge), showing peripheral processes of "corpus mammæ" cut across.

### PLATE II. Fig. 1.

Slice from the cancerous mamma of a spinster, æt. 27. The tumour had been noticed 18 months, and occupied the periphery of the upper and outer quadrant.

- *a.* Nipple and ducts.
- *b.* Skin.
- *c.* Subcutaneous fat.
- *d.* Corpus mammæ.
- *e.* Parenchyma—consisting of branched ducts from which only a few small ultimate lobules have been developed.
- *f.* Peripheral process of corpus mammæ, ending in a "ligament" of Cooper.
- *g.* Sternal edge of corpus mammæ cut across on surgeon's cut-surface.
- *h.* Intra-mammary fat.
- *i.* Pectoral fascia.
- *k.* The tumour, which has partly invaded the superjacent skin.
- *l.* A portion of the serratus magnus muscle to which the tumour was adherent.

### PLATE. II. Fig. 2.

Peripheral slice from the cancerous mamma of a spinster, æt. 39. To illustrate some points in the normal anatomy of a well-developed gland.

- *a.* Stroma.
- *b.* Ultimate lobules of the parenchyma arranged in grape-like clusters around the terminal branches of the ducts.
- *c.* Connective tissue framework of circum-mammary fat (*d*).
- *e.* Surgeon's cut-surface with (*f*) breast tissue extending up to it.

### PLATE II. Fig. 3.

Opposite surface of the slice illustrated in the previous figure, showing the appearance of the surgeon's cut-surface when the gland has not been completely removed. Same lettering as above.

PLATE

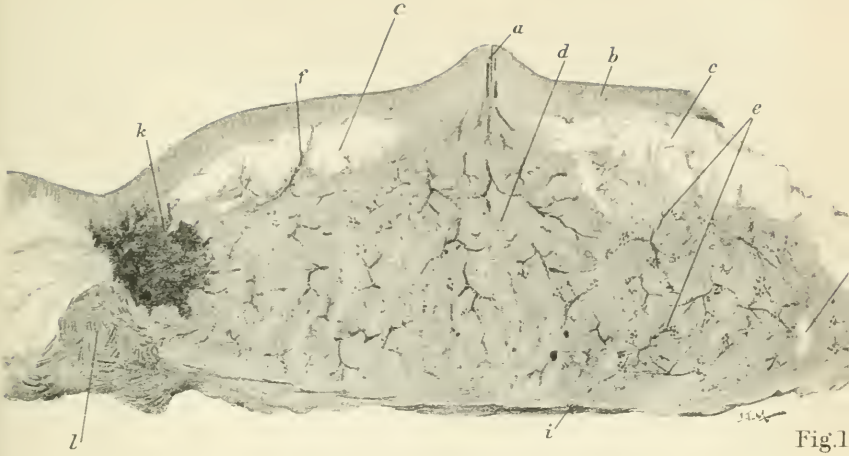

Fig.1

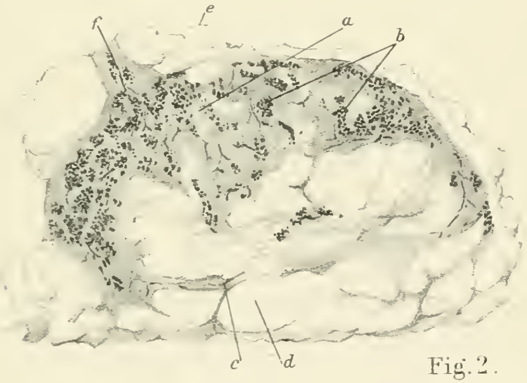

Fig. 2.

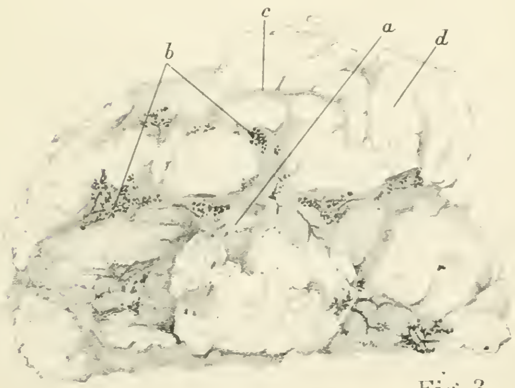

Fig. 3.

mammæ. The amount of parenchyma relatively to the stroma varies considerably in different nulliparæ (compare figs. 1 and 2, Plate II.), and even in the same breast the ducts of one hemisphere or of one quadrant may possess numerous lobules, whilst the rest of the organ remains in the condition in which it is found at puberty, viz., with the parenchyma represented almost entirely by a much branched system of ducts (Plate I., fig. 1).

The peripheral processes of the corpus mammæ are relatively small in the nulliparous breast. They radiate from all parts of its surface into the circum-mammary fat. Those springing from the anterior surface appear in vertical sections of the breast as triangular tooth-like processes, with fibrous prolongations ("ligaments" of Cooper) passing from their apices to the corium (Plate I., fig. 1 *b*; Plate II., fig. 1 *f*). The parenchyma is prolonged into these processes, and in thin women reaches almost up to the corium. It follows, therefore, that the surgeon who intends to excise the whole of such a gland must either sacrifice a large amount of skin, or keep so close to it in dissecting it off the mamma as to run some risk of sloughing. From the sides of the larger processes smaller secondary processes arise, and by the junction of these with others from neighbouring processes a reticular arrangement is produced, the meshes of which are occupied by the subcutaneous fat lobules (Plate II., fig. 3). After tearing off the loose retro-mammary tissue the smooth appearance presented by the posterior surface of the corpus mammæ might lead one to conclude that it gave off no processes into the retro-mammary tissue. As a matter of fact, however, the microscope reveals the presence of outlying gland lobules, extending from the corpus mammæ into the retro-mammary tissue, up to and between the layers of the pectoral fascia. In order, therefore, to remove all the parenchyma, the retro-mammary tissue and pectoral fascia as well as the breast must be carefully dissected off the muscle. Beyond the limits of the parenchyma the stroma of the peripheral processes becomes directly continuous with the connective tissue framework of the circum-mammary fat.

The reticular arrangement of the peripheral part of the gland is not difficult to understand, when we consider that the organ is developed by a process of continuous centrifugal budding into the subcutaneous tissue from embryonic epithelial invasions derived from the epidermis. As early as the seventh or eighth week of fœtal life, a superficial mammary area is differentiated through the invasion of the mesoblastic tissue by a solid hemispherical clump of epithelial cells produced by proliferation of the cutaneous epiblast. At the twelfth week this primary epithelial invasion begins to send downwards secondary epithelial columns equal in number to the main lactiferous ducts and lobes of the future adult gland. By the sixth month these columns have penetrated almost up to the rudimentary pectoral muscle, and are slightly branched at their extremities. They are imbedded in a well-developed fibrous stroma, which is surrounded by the developing fat lobules of the subcutaneous tissue. The stroma is continuous below with a layer of condensed fibrous tissue covering the pectoral muscle, and which sends processes between its fasciculi. During the later months of intra-uterine life the primary epithelial invasion is flattened, expanded, and cupped upon the surface, due to the horny transformation and desquamation of its more superficial cells. The secondary epithelial columns become channelled and more branched. At birth the primary epithelial invasion forms the thin epidermic covering of a circular and slightly depressed area which represents the areola, under which plain muscular fibres have already made their appearances. The nipple does not develop until a few years after birth, and is due to a papillary upgrowth of the cutis around the ducts. The rudimentary corpus mammæ at birth is a well-defined and somewhat rounded body intervening between the cutis and the pectoral muscles. The parenchyma consists of sparingly branched tubes or ducts which have not yet furnished themselves with acini. The stroma consists of compact coarse fibrous tissue surrounded by, but not mixed with fat lobules. Connective tissue processes and lamellæ radiate from the corpus mammæ to become continuous with the fibrous capsules enclosing the subcutaneous fat. From birth up to puberty the breast remains in this primitive condition, and simply grows at the same rate as the body generally. At puberty, in common with the rest of the sexual apparatus, it takes on a sudden development, which consists in a further branching and budding out of the ducts into the surrounding tissue.

The stroma of this new parenchyma is derived from the fibrous elements of the surrounding subcutaneous tissue, the fat lobules of which remain imbedded in it. At puberty, therefore, and for several years after it, the mammæ, although to external appearances well developed, contain a relatively small amount of gland tissue which in reality represents merely the excretory ducts (Plate I., fig. 1), from which the true secreting acini have yet to be developed by a still further process of budding of flask-like diverticula around the extremities of their final ramifications. The development of the peripheral part of the gland in this reticular fashion allows of the increase in size and relatively much greater development of parenchyma which takes place during pregnancy. The evolution consists in the increase both in the number and size of the gland lobules to such a degree that the peripheral processes and lamellæ are so expanded that they become approximated, and cause more or less complete absorption of the intervening fat. In this way the fully evoluted mamma comes to possess the completely parenchymatous appearance of other secreting glands which are and always have been functionally active. After a variable period of functional activity the changes of involution set in by which the organ returns to its resting state. The process is characterized by an extensive atrophy of the parenchyma, and a more or less abundant development of fat cells in the persistent stroma. The breast does not return to its original virgin condition, so that one has generally no difficulty in distinguishing a nulliparous from an involuted multiparous mamma. In the latter (Plate I., fig. 2) the corpus mammæ is looser in texture, irregular, and broken up, owing to the large amount of fat in the stroma. The retro-mammary tissue has undergone a fatty transformation, so that the breast is separated from the pectoral fascia by a layer of fat of greater or less thickness. The peripheral processes are large and more widespread, so that the differentiation into body and processes is less marked. After the menopause the gland lobules undergo more or less complete atrophy, so that sometimes only the ducts remain. Small cysts (involution cysts), generally multiple, and varying in size from a millet seed to a pea, are not unfrequently met with in atrophied breasts. They are generally the result of degenerative changes in the pre-existing lobules rather than a simple dilatation of the ducts. They are, therefore, most numerous upon the deep surface of the organ where the gland lobules are most abundant. They contain a serous or mucoid fluid, either colourless, yellow, brown, or bluish-green. When three or four such cysts are closely aggregated, and the intervening and surrounding tissue condensed, the condition gives rise to clinical signs closely resembling "scirrhus," and may call for a diagnostic incision before the surgeon can determine whether or not the breast should be excised. The cystic condition, however, generally wants the characteristic density and definition of outline of scirrhus, and the rest of the breast often feels coarse and knotty, from the existence of small cysts elsewhere.

As a result of the disappearance of the gland lobules after the menopause the corpus mammæ, in spare women, becomes reduced to a more or less flattened plate-like structure, which is closely related to the subjacent muscles. The boundary-line between the body and the peripheral processes is often difficult to define. The peripheral processes are greatly narrowed and attenuated, until finally they are reduced to mere threads of fibrous tissue; they do not, however, taper away uniformly, but possess irregular and sometimes extensive thickenings at the nodes of the very irregular network which they form. This condition is not due to irregular atrophy of the parenchyma, but simply to variations in the relative amount of stroma and fat at different parts. In women who become obese after the menopause the breast tissue undergoes such an extensive fatty transformation, that in spite of the very large size of the organ very little fibrous tissue remains, except in the vicinity of the nipple and areola; the rest of the breast consists of large lobules of a yellow, oily-looking fat, between which are small irregular patches of fibrous tissue united into a very wide-meshed network by narrow bands and lamellæ in which small ducts can here and there be seen. The gland acini have almost completely disappeared. If such a breast be the seat of an ordinary circumscribed carcinoma, the tumour on palpation appears to be ill-defined, and about twice its actual size.

The surgical anatomy of the mamma would not be complete without a reference to the retro-mammary tissue and pectoral fascia; indeed, from the surgeon's point of view these structures are no less important than the breast itself, and should be looked upon as part of it. In spare women the corpus mammæ is separated from the subjacent muscles by a thin layer of loosely arranged, delicate connective tissue rich in elastic fibres; the deeper layers are more closely packed to constitute the pectoral fascia proper, which is very thin, and gives off processes which penetrate between the fasciculi of the pectoral muscle. The presence in this retro-mammary tissue and pectoral fascia of outlying lobules of the parenchyma has already been referred to. No separation can be made with the knife through this loose areolar tissue without the risk of leaving behind lobules of parenchyma. In obese subjects the retro-mammary tissue is laden with fat, which forms a thick layer separating the corpus mammæ from the subjacent muscles. The fascia in such cases is so thin as scarcely to be recognised.

The lymphatics of the breast are important alike to the surgeon and pathologist. Within the gland itself they are too small to admit of a dissection, and as they are usually collapsed in normal histological preparations, they cannot be satisfactorily studied unless artificially or naturally injected. Langhans,[1] although failing with senile glands, succeeded in injecting the lymphatics of non-atrophied breasts to the extent of several square centimetres by means of chance puncture injections of coloured materials into the interlobular connective tissue of the posterior aspect of the gland. The injection filled a system of lymph channels, forming a round-meshed network occupying the stroma, and enclosing one or more ultimate gland lobules in each mesh. This network receives the lymph from the interacinous spaces, and is continuous with other injected lymphatics occupying the adventitious walls of the ducts, and running parallel with them towards the areola, where they open into a horizontal plexus of larger lymphatics, lying in the loose connective tissue surrounding the lactiferous sinuses. This sub-areolar plexus (Sappey[2]) communicates freely with the lymphatics of the nipple and surrounding skin.

In carcinomatous breasts the lymphatics may frequently be seen injected, as it were, with cancer cells, so that by a careful study—more especially of the spread of the cancer in the different tissues in and around the breast—one can gain a more satisfactory idea of their structure and arrangement than is to be afforded by chance and unsatisfactory artificial puncture injections.

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[1] *Archiv für Gynak.*, Bd. viii. p. 181.

[2] *Traité d'Anatomie, Descriptive*, t. ii. p. 827, and t. iv. p. 753.

It must not be supposed, however, that in carcinoma of the mamma the lymphatics throughout the gland are extensively and continuously filled with cancer cells. The examination of many microscopic sections, both of the tumour and of the surrounding breast tissue, may fail to demonstrate cancerous emboli in the larger lymphatic vessels. In successful microscopic preparations there is no difficulty in distinguishing the cancer cells from the epithelium of the gland parenchyma, so that the relation of the one to the other can easily be made out. The cancer cells invade first the lymph spaces of the tissue, and, since they probably possess no independent or amœboid movement, their entrance into the lymphatic vessels is more or less accidental. I have repeatedly seen lymphatic vessels containing cancer cells in all the situations in which Langhans has artificially injected them. When the perilobular and periductal lymphatics are filled with cancer cells, an appearance is produced which has erroneously been ascribed to a direct cancerous transformation or degeneration of the epithelium of some of the acini of a gland lobule. In cancerous breasts in which the tumour is closely related to the areola and nipple, the lymphatics surrounding the main lactiferous ducts are often seen to form a ring of large spaces more or less filled and distended with cancer cells. In many cases, owing to shrinkage of the cancerous emboli, the endothelial lining of the lymphatic vessels may be distinguished as a single and continuous layer of flattened cells. Outside the endothelium the wall of the lymphatic is formed merely by the connective tissue surrounding the lactiferous duct. The duct itself may be more or less compressed and altered in outline, but the epithelium lining it is generally quite normal. An atrophic cancer situated close under the nipple is liable to give rise to that form of secondary infiltration of the skin which Velpeau termed "*cancer en cuirasse.*" The association of the two conditions is accounted for by the readiness with which the cancer cells may gain access to the cutaneous lymphatics of the nipple and surrounding skin through their continuity with the sub-areolar plexus.

Besides the lymphatics which are closely related to the parenchyma, there are other intra-mammary lymphatics, which, while anastomosing with the perilobular and periductal lymphatics, are more closely associated in their distribution with the bloodvessels, which, as regards the mamma, do not run in company with the ducts. If the tissue be carefully fixed, hardened, and sectioned by the paraffin process, these lymphatics when not empty and collapsed may be identified, and their structure as well as contents studied. Their structure is exceedingly simple, consisting merely of a continuous layer of endothelium, planted directly upon the unmodified connective tissue stroma which surrounds and supports the bloodvessels they accompany. I have never seen, within the mamma itself, lymphatics which possessed definite walls containing muscular fibres. The larger bloodvessels are accompanied by two or sometimes more lymphatics occupying their sheaths. When accompanying small vessels and arterioles they are usually single, of a much greater calibre than the artery, and in transverse section are often seen to surround it almost completely. In other instances the arteriole occupies the centre of a large perivascular lymph sheath. No doubt in the majority of cases the lymphatics in histological preparations are empty and collapsed; such as are not so, however, contain a delicate fibrinous coagulum, either alone or with a few leucocytes. When cancerous, they are generally filled and distended with cancer cells, which may or may not have invaded their walls and involved the surrounding tissue. Occasionally one may observe a lymphatic of large calibre, which is patent, containing only a few cancer cells which appear to have been floating along with the lymph stream. In such a condition the endothelial lining of the lymphatic is very distinct and quite normal. I have never seen any appearances which indicate that the endothelium of cancerous lymphatics in any way participates in the cancerous process.

The examination of a large number of carcinomatous breasts has afforded a demonstration of lymphatics containing cancerous emboli in one or more of the following situations, viz., in the connective tissue processes radiating from the tumour into the surrounding breast tissue or circum-mammary fat; in the breast tissue, remote from as well as close to the tumour; in the connective tissue septa, separating the lobules of the circum-mammary fat; in the so-called "ligaments of Cooper," where they often lead to small disseminated cancerous nodules in the corium; in the retro-mammary tissue and pectoral fascia. In the last-named situation they are large, and generally accompany the bloodvessels which pass to and from the deep surface of the mamma.

With the above facts before us regarding the structure of the lymphatics, and the different situations in which we may observe them, we have now to consider the mammary lymphatic system and its circulation as a whole. Unfortunately here, as well as elsewhere in the body, our knowledge of the lymphatic circulation is very imperfect. What I have to say regarding this subject in the mamma is based upon the above anatomical facts, combined with a clinical and pathological study of the lymphatic dissemination of cancer as it occurs in this organ. Sappey describes the lymphatics of the mamma as consisting of—(1), a superficial or cutaneous set; (2), a deep or glandular set, embracing the lobules and lobes of the gland. He considers that all the trunks springing from the latter system pass from the posterior surface, and from the thickness of the gland towards the areola, where they form a plexus remarkable for the large size of its component vessels. From this sub-areolar plexus pass two, sometimes three, large trunks which empty themselves into the glands of the axilla. Langhans, on the other hand, holds that the efferent lymphatics of the true gland occupy the loose retro-mammary tissue, the larger trunks frequently following the larger bloodvessels in pairs. He has injected them simultaneously with the intra-mammary lymphatics.

My own observations have led me to look upon the mammary lymphatic system as consisting of five sets of vessels, which communicate freely with one another,—(1), A superficial or cutaneous set, including those of the nipple, areola, and surrounding skin; (2), the sub-areolar plexus of Sappey; (3), intra-mammary lymphatics; (4), lymphatics of the circum-mammary fat; (5), retro-mammary lymphatics. The cutaneous and intra-mammary lymphatics (in part) open into the sub-areolar plexus which connects these two systems. The lymphatics of the circum-mammary fat constitute a part of the general superficial lymphatic system of the chest. They receive, on the one hand, the lymphatics of the true skin, and on the other hand, efferent lymphatics from the anterior surface and circumference of the mamma. These lymphatics of the circum-mammary fat open into larger and deeper lymphatics placed between the layers of the deep fascia. Lastly, from the lymphatics of the deep fascia large trunks pierce its deep surface, and constitute the well-defined vessels with thin but muscular walls which pass to the lymphatic glands as their afferent vessels. The retro-mammary lymphatics (including those of the pectoral fascia) receive all the efferent mammary lymphatics which leave the posterior surface of the gland. In this way, therefore, the efferent lymphatics of the corpus mammæ, of the fat around it, and of the nipple, areola, and skin over it, open either directly or indirectly into the lymphatics of the deep fascia, which latter accompany the bloodvessels of the gland, pierce the deep fascia along with them, and so reach the lymphatic glands which lie in groups or chains alongside them. The lymphatics from the inner part of the mamma accompany the perforating branches of the internal mammary artery to join the sternal glands placed along its trunk. The greater number, however, accompany the mammary branches of the acromio-thoracic, long thoracic, and external mammary branches of the axillary artery to open into the axillary glands. I cannot agree with Sappey in considering that the two or three lymphatic trunks leading from the sub-areolar plexus are the ultimate and only channels for the receipt of the lymph from all parts of the mamma. Such teaching is entirely out of harmony with what is observed both clinically and pathologically in carcinoma of the mamma.

Recurrence of the disease after operation is due to the non-removal of small and often microscopic foci of cancer, more or less remote from the main tumour, and depending for their origin upon the arrest and growth of cancerous emboli disseminating more or less directly from the primary tumour along the lymphatics. The importance of removing all the retro-mammary tissue, pectoral and axillary fascia, axillary fat and glands, along with the breast in all cases of carcinoma, cannot be too strongly insisted upon or too oft repeated. The anastomosis and intersection of the lymphatics are so free that it is impossible to say towards which set of glands the lymph from any given point in the breast will be conveyed. I have seen cancerous lymphatic emboli at the axillary border of the mamma when the tumour was situated in the inner hemisphere, and *vice versâ*. There is no doubt also that the lymphatics of the two breasts communicate to a certain extent through a median anastomosis of both the superficial and retro-mammary lymphatics. When both breasts become cancerous, one subsequently to the other, the disease in that affected later is, in the majority of cases, probably the result of lymphatic infection, and not a primary condition. In support of this view, I may instance the case of a patient under the care of Prof. Chiene, who presented herself with a second recurrence in the left breast, in the shape of a cancerous ulcer the size of a crown piece, occupying what corresponded to the lower and inner quadrant of the mammary area. There was a large cancerous mass in the corresponding axilla, and in addition two cancerous masses in the opposite or right axilla, one the size of a pigeon's egg, the other of a hazel nut. Further operative treatment was not deemed advisable; but, judging merely from clinical examination, the right breast appeared to be free from cancer. In this case it would appear that the disease in the right axilla had been conveyed thither along the retro-mammary lymphatics, the breast itself having escaped.

(*To be continued.*)

## VII.—CASE OF PARTIAL OBLITERATION OF THE GALL-BLADDER IN A NEW-BORN INFANT, ASSOCIATED WITH NUMEROUS OTHER CONGENITAL MALFORMATIONS.

By JOHN THOMSON, M.D., F.R.C.P.E., Extra-Physician to the Royal Hospital for Sick Children; Lecturer on Diseases of Children, School of Medicine, Edinburgh.

(*Read before the Obstetrical Society of Edinburgh, 10th February* 1892.)

FOR the opportunity of examining and reporting the following case, I am indebted to my friend Dr T. J. Thyne, by whom I was asked to see the child. The infant was born on the evening of January 13, 1892.

*Family History.*—The mother (Mrs R.) is a strong, healthy-looking woman, and this is her fifteenth child. Nine of her former children are alive and healthy, and five have died from various ordinary complaints. None of the family have, so far as can be ascertained, suffered from any congenital malformation or disease, and there is no history of syphilis and no reason to suspect it.

*Pregnancy.*—The mother says that when she was about one month pregnant she got a very great fright from a cat, with a kitten in its mouth, suddenly jumping through the glass of the window into her room. The fright made her feel ill at the time and for some days after.

*The birth* was normal, but was thought to be about a month premature. There was an unusually large amount of liquor amnii.

*After birth*, the infant was noticed to be deeply cyanosed, and its extremities were swollen (œdematous). On auscultation, a loud, harsh, systolic murmur was heard by Dr Thyne all over the front of the chest. A quantity of normal meconium was passed. There was no jaundice. The child got rapidly weaker, and he died at 2 P.M. on January 14, shortly before I saw him.

*Post-mortem Examination*, 15th January:—

*External Inspection.*—The child is small, and, from his general appearance and the state of his nails, would seem to be more than one month premature. The body presents the following abnormalities:—

1. The whole of the right external ear, with the exception of the lower part of the lobule, is adherent to the adjacent scalp. The left ear, though poorly formed, is not specially abnormal.

2. There is harelip on the right side, extending into the nostril and communicating with

3. A complete cleft of the hard and soft palate.

4. There is a curious abnormality of both hands. The bones of the hands and fingers are normal in number and size; but the index finger stands apart from the medius—parallel with the thumb—as if opposing the other fingers along with the thumb. As far as can be made out without dissection of the hand, the articular surface of the metacarpal bone of the index finger must be abnormal in direction. Both the index and medius seem incapable of complete extension. There is no corresponding abnormality of the feet.

The scrotum is empty, but otherwise the external genitals are normal.

*Thorax* well formed. Thymus large; pleuræ and pericardium normal, containing no fluid; lungs normal and well expanded.

The heart and great vessels present the following abnormalities:—

1. The latter have a completely fœtal conformation. The ductus arteriosus is very wide (about $\frac{1}{7}$ inch internal diameter). The aorta is very slightly narrowed before the ductus joins it; there is no narrowing of the pulmonary artery.

2. The pulmonary and aortic orifices are each provided with only

two semilunar valves. These are normal in texture, and seem to close the orifices satisfactorily.

3. There is an oval opening in the upper part of the interventricular septum, measuring $\frac{2}{5} \times \frac{1}{3}$ inch.

The auriculo-ventricular valves appear normal, and the foramen ovale is closed by a loose membrane which, besides showing the usual opening at its upper part, has numerous small apertures in it. The thickness of the wall of the right ventricle is to that of the left as 2 to 3.

*Abdomen.*—No trace of peritonitis visible.

*Liver* (see Plate[1]) appears normal in size (weight 2 oz.), and is very dark in colour and congested.

The gall-bladder is very small—about half-an-inch in length. It is embedded in a mass of white cicatricial tissue. On further dissection, it is found that its walls are very much thickened, and its lumen very small and somewhat stellate in shape. It contains a few drops of thin yellow fluid. Its posterior end and the upper third or so of the cystic duct are entirely obliterated.

The lower two-thirds of the cystic duct, and the hepatic and common ducts seem to have thickened walls and small lumina, but they are pervious. The bloodvessels supplying the gall-bladder are unusually large. The peritoneum covering the gall-bladder and adjacent parts is perfectly smooth and normal.

On microscopical examination, the thickened wall of the gall-bladder is found to have a fibro-cellular structure resembling that of granulation-tissue. It is lined by normal-looking columnar epithelium, and, in its substance, there are some small cysts, lined by similar epithelium, which look like dilated mucous glands. The obliterated part of the gall-bladder shows the same fibro-cellular structure, with cysts like dilated acini, but has no trace of a lumen. The connective tissue in which the gall-bladder is embedded seems to consist of a great hypertrophy of that usually surrounding the organ. It contains some very large blood-vessels.

The liver-tissue shows a slight increase of leucocytes in the portal spaces.[2]

Nothing abnormal is noticed about the intestines. The papilla of the ductus communis is normal and patent. The large bowel is filled with normal-looking meconium. There are some enlarged mesenteric glands.

The spleen is a little larger than natural and is dark in colour, but otherwise normal.

The kidneys are irregular in shape, and are united to one another below for about $\frac{3}{4}$ of an inch, forming a "horse-shoe kidney."

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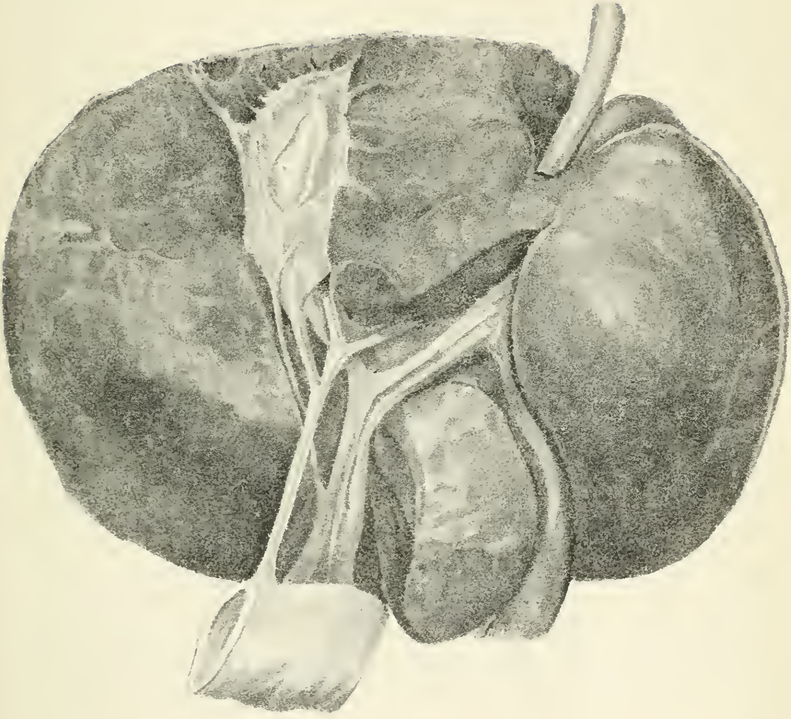
[1] The drawing is one and a half times the natural size.

[2] A further examination of the minute anatomy of the liver and ducts in this case has been undertaken by Dr R. Muir, and will be published on another occasion.



Congenital Obliteration of the Gall Bladder.

W$^{m}$ CATHIE LITH

The ureters come off from the anterior surface of the kidneys. The adrenals are normal in size and shape.

The bladder is normal, as are also the testicles, which are situated at the brim of the pelvis.

*Remarks.*—This case is of considerable interest, because the condition of the gall-bladder found in it is evidently due to the disease which produces "congenital obliteration of the bile-ducts;"[1] and some of the other facts of the case may help to throw light on the somewhat obscure subject of the etiology of that condition.

In a recent paper on this subject,[2] the present writer has attempted to prove that the inflammatory process which is the immediate cause of the malformation in these cases has nothing whatever to do with syphilis (as is usually taken for granted), but is, probably in all cases, secondary in some unexplained way to a developmental abnormality.

The present case affords strong confirmation of this view. For, on the one hand, we find that there is no history of syphilis in the parents; that they have had fourteen previous children, all healthy; and that the child itself presents no appearance in any other organ that could be held to be due to syphilis. While, on the other, the numerous developmental abnormalities, both internal and external, certainly afford strong presumptive evidence in favour of the malformation of the gall-bladder being of the same nature.

The hypothesis advanced in the above-mentioned paper for the cases of which it treats (and for which reasons are given there) is applicable to this case. It is that the condition of the gall-bladder and ducts is due to a chronic inflammatory process which has originated *in utero* owing to the presence of a developmental abnormality, which in some way or other has exerted an irritating influence in its neighbourhood.

The fact of the epithelium lining the gall-bladder being normal and healthy-looking (and that of the bile-ducts also, so far as they were examined), seems to prove that the cause of the inflammation cannot have consisted, as might have been suggested, in abnormal composition and consequent irritating properties of the bile.

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[1] In several of the cases of congenital obliteration of the bile-ducts which have been recorded, the gall-bladder is described as being in very much the same condition as in this case. See, for example, Lotze, *Berliner klin. Wochenschrift*, 1876, No. 30, p. 438; Freund, *Jahrb. f. Kinderheilk.*, ix., 1876, p. 406; E. Gessner, *Ueber congen. Verschluss der grossen Gallengänge*, Inaug. Diss., Halle, 1886.

[2] *Edin. Med. Jour.*, Dec. 1891, and January and February 1892.

# VIII.—AN EXAMINATION OF THE PHENOMENA IN CHEYNE-STOKES RESPIRATION.

By G. A. Gibson, M.D., Assistant Physician to the Royal Infirmary, and Lecturer on the Principles and Practice of Medicine at Minto House, Edinburgh.

(*Concluded from page* 932.)

In order to arrive at a real understanding in regard to the conditions underlying Cheyne-Stokes breathing, it is necessary to grasp the results of physiological investigation into the nervous mechanism controlling the respiratory movements.

In these complex movements there is one of the most wonderful examples of co-ordinated muscular acts. The precision with which the different movements—facial, faucial, laryngeal, and thoracic—are brought into harmony with each other, speaks for a highly specialized nervous apparatus. These various movements are not merely complementary to each other under ordinary conditions, but they may in altered circumstances become also compensatory. If the phrenic nerves, for example, are severed, so that the diaphragm is paralyzed, the intercostal muscles act much more powerfully in an attempt to compensate for its inactivity. Such observations prove that the centres controlling the respiratory movements have the power of increasing the activity of certain muscles in order to supply what is lacking on account of deficient efforts elsewhere.

It is, perhaps, unnecessary in this place to refer to the question whether more centres than one are concerned in the maintenance of the respiration, but a brief allusion to it will conduce to the thorough comprehension of the subject. From the results of experiments performed by severing the connexions of the medullary centres, it is quite clear that in young animals at least there are spinal, as well as bulbar, centres engaged in the movements of respiration. This is analogous to the now thoroughly established and more widely-known fact, that there are vaso-motor centres in the spinal cord as well as in the bulb. In both cases there are probably lower spinal, under the control of higher bulbar centres. In the respiratory mechanism of the adult mammal, the functions of the lower spinal centres, however, appear to be allowed to fall into desuetude.

It will serve no purpose to enter upon any attempt to draw distinctions between inspiratory and expiratory centres: no such differentiation is of the least use in the present inquiry.

The nervous mechanism concerned in respiration is remarkably subject to the influence of external agencies. The movements of respiration may not only be modified by processes taking place in the higher nervous tracts, such as volitional impulses or emotional impressions, but they are subject also to alterations in consequence of any considerable stimulus of any part of the lower nervous system.

The functions of the respiratory centre are also modified by changes in the blood circulating through the nervous textures. The presence of venous blood augments the respiratory movements; even after section of the vagi and spinal cord below the bulb, a venous state of the blood increases the facial respiratory movements. A lessened supply of blood, as after ligation of the carotid and vertebral arteries, produces dyspnœa, and the same result is produced if the blood flowing upwards in the carotid arteries is heated. Against these facts must, however, be placed the interesting observation, that if by transfusion the normal blood circulating in the bulb is replaced by a fluid containing little or no hæmoglobin, and therefore but little oxygen, dyspnœa is not produced.

The condition of apnœa may be caused by forced respiration, but it has been found that this cannot be brought about so easily after section of the vagi; this is what might be expected, seeing that the inhibition of inspiratory movements is largely the function of the vagi, and, more especially, of the superior laryngeal branches. The production of apnœa may be effected by forced breathing of such an indifferent gas as hydrogen, and the positive ventilation, as it is termed by Foster,[1] appears to act more as a mechanical stimulus to the vagus terminations, than as a chemical stimulus acting through the blood.

The regulative influences normally ascending the vagus nerves are apparently twofold, and probably run along different sets of fibres. No other conclusions can be drawn from the fact, that when, after section of the vagi (producing deep and infrequent respiration), the upper ends are stimulated, the respirations are sometimes rendered more, and at other times less, frequent.

Very many of the phenomena produced by external agencies are purely reflex in their nature, but when this had been granted there remain other facts which point to something more than simple reflex action in the respiratory centre.

After section of the vagi, for example, the respiration is maintained although considerably modified by the lack of the ascending regulative influence of these nerves. This observation proves that the movements of respiration are in their causation independent of, although modified by, stimuli from the lungs.

If the spinal cord be severed from the bulb, and all the accessible sensory cranial nerves be divided, so that the respiratory centre is set free from almost all sensory stimuli, the respiratory movements of the face and larynx continue, although the thoracic movements necessarily come to an end. In this observation there is clear proof that the respiratory movements are independent of all sensory stimuli.

Such facts demonstrate, beyond the shadow of a doubt, that the respiratory centre is in its nature truly automatic.

The most scientific conception of the respiratory centre, therefore, seems to be that it is one endowed with an independent automatism, but that it is subject to modifications of its activity by impressions from without.

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[1] *A Text-Book of Physiology*, fifth edition, Part ii. p. 595, 1889.

The next step in the inquiry is to find out whether periodic changes in the rhythmic action of the respiratory centre may occur under physiological conditions. Mosso, as has already been seen, pointed out that in men and domestic animals, perfectly healthy, but fatigued by exertion, the breathing tended to become periodic and intermittent during sleep. This is an observation which has been verified by subsequent investigations, and which may be confirmed by anyone who has any doubt on the subject. During the after-dinner nap of elderly persons there is also a great tendency to periodic respiration, which may exhibit the phenomena of Cheyne-Stokes breathing in its most pronounced form. This may, as in the case communicated to me by Dr Muirhead and previously referred to, occur day after day for years. But it is not necessary to look for such periodic variations in the rhythm of respiration in conditions of fatigue or of advanced life, where it may possibly be said that the conditions are not absolutely physiological. Edes has, as was previously mentioned,[1] observed that in certain individuals the breathing during sleep is constantly periodic, and it seems probable that the members of some families have a peculiar tendency to the development of the symptom. The periodic breathing may therefore be regarded as in many instances a perfectly physiological appearance. This conclusion divests the symptom in itself of any prognostic significance, and any importance which it may have in this respect is to be estimated by the conditions in which it is seen. In hibernating animals, as Mosso showed,[2] the breathing is very similar to Cheyne-Stokes respiration. The case described on a previous page,[3] in which during mental efforts the breathing fell into groups of ascending and descending respirations, must be referred to in this connexion.

In all the diverse forms of disease classified on a previous page presenting Cheyne-Stokes breathing, one condition may be held to be constant—a reduction of the activity of the higher nervous structures. Whether the cause be in the nerve centres primarily, or in other structures, such as those of the digestive, circulatory, respiratory, or renal systems, or in general affections, such as the specific fevers, there is, when Cheyne-Stokes breathing is present, the one constant condition of lowered nerve activity, such as normally occurs in deep sleep, or after a full narcotic dose. It must not be imagined, from the reference just made to circulatory changes as a cause of Cheyne-Stokes respiration, that there is any such direct nexus between the state of the circulation and the condition of the breathing as has been postulated by Filehne and his followers. The fact that there is no cyanosis during the pause is in itself enough to negative such views, against which valid objections have been fully urged previously. There is, however, a more general connexion between the state of the circulation and the condition of the nerve centres. If at any time the quantity or quality of the blood should depart from the normal, the activity of the nervous structures suffers in a direct ratio. In this way, but in no other, is there in Nature a connexion between the function of the circulatory and nervous mechanisms.

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[1] *Loc. cit.*

[2] *Loc. cit.*

[3] Case VI., vol. xxxi. page 922.

The explanation of all these phenomena is supplied by the interesting series of investigations of Marckwald,[1] from which he has been led to the conclusion that periodic breathing can only occur when some of the higher brain tracts have ceased to exert their influence upon the respiratory centre. During sleep the action of these higher tracts is in abeyance to a greater or lesser extent; in certain individuals a greater degree may habitually be present, in others it only takes place after great fatigue. It is more likely to occur during the process of digestion, as in the after-dinner nap, because the nervous energy is then carried off in another direction. In Case VI. the accession of the pauses was obviously determined by the deviation of nervous influences into other channels by mental effort.

The effect of many drugs which produce periodic breathing amply confirms this view, as all of them which have been found to produce such changes have the power of lessening cerebral activity.

It is, however, extremely probable that in addition to the removal of the higher influences the activity of the respiratory centre itself must be lessened.

Such periodic phenomena are not confined to the respiration. Luciani[2] and Rosenbach[3] have observed analogous phenomena in the amphibian heart when removed from its normal nervous control, and Waller and Reid, in a recent investigation,[4] have observed analogous phenomena in the excised mammalian heart. Fano[5] and Langendorff[6] have seen similar appearances in the excised heart of the embryo, and Solokow and Luchsinger[7] in the lymph hearts of dying frogs.

It was previously seen that the periodic movements of the respiratory muscles in hibernation had been observed by Mosso[8] to become regularly rhythmic on elevation of the external temperature. A periodicity of respiratory rhythm was caused by Fano[9] in the alligator by subjecting it to the influence of cold. In these instances it is only a fair inference that the depressing influence of the low temperature lowers the vitality of the animal and diminishes the control of the higher nervous centres, while it no doubt at the same time lessens the activity of the respiratory centre.

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[1] *Loc. cit.* [2] *Loc. cit.* [3] *Loc. cit.*

[4] *Philosophical Transactions of the Royal Society of London*, vol. clxxviii. page 218, 1887.

[5] *Lo Sperimentale*, tomo lv., p. 143 e. 252, 1885. [6] *Loc. cit.*

[7] *Loc. cit.* [8] *Loc. cit.* [9] *Loc. cit.*

It seems to be in accordance with some great natural law, that rhythmic phenomena tend to become modified when the organs have their vitality lowered or are still imperfectly developed. This conception appears to be confirmed by Steiner's observations on Medusæ. He points out [1] that the rhythmic contractions of the calyx fall into periodic groups separated by pauses from each other when Medusæ are kept in water which has not been sufficiently often renewed.

Phenomena analogous to those seen in Cheyne-Stokes respiration are observed in various conditions. Changes in the rhythm of the pulse lead in many cases to more or less periodicity of groups of pulsations, and in certain circumstances, more especially perhaps when the heart has undergone degenerative changes, the pulse-tension manifests a marked tendency to show periods of elevation and depression. The Traube-Hering curves seen on physiological investigation may probably throw a side-light upon the development of such a symptom.

Reasons have been adduced by me on a previous page for believing that in certain states of the nervous system there are periodic fluctuations of consciousness which may be regarded as analogous to the periodic changes of respiration.

In most of the instances brought forward, the obvious character of the change is the induction of a larger secondary upon the smaller primary periodicity of the phenomena.

It has already been proved that the respiratory centre is to a great extent endowed with automatism. It is like the other organic centres possessed of much more vitality than the higher centres, and can resist influences fatal to their integrity. When from any cause the higher centres are rendered incapable of performing their proper functions, the influence normally exerted is in abeyance, and the organic centres are allowed free play for their automatism.

From the investigations of Marckwald it must be concluded that the automatic centre for respiration is under the control of a higher regulating centre. Whether the periodic respiration produced by section of the bulb in its upper part may not be in part caused by disturbance of the automatic centre by which its activity is lessened may be reserved as a point that might be discussed. It seems clear that when the activity of the automatic centre is reduced, its functions have a tendency, common as has been seen to all vital structures, to become periodic.

A careful study of the entire phenomena must lead to the adoption of the view that Cheyne-Stokes breathing is but one of a complex group of associated symptoms, as has been so clearly pointed out in the suggestive contributions of Rosenbach. Why there should be such diversity of phenomena connected with the pulse, eye, and mind, it is at present impossible to answer. In one case there may be no periodic phenomena except the respiratory, and in another the entire complex of symptoms—mental, visual, circulatory, and respiratory—may be present. It is only possible at this time to hazard the suggestion, that the centres involved in each group of symptoms may be affected singly or collectively. Reasons have been given for believing that there may be well-marked periodicity of mental functions or of circulatory functions without any similar change of rhythm in the other systems. In what respect these various symptoms are linked it is not with our present knowledge possible to state, and it is equally difficult to assign any reason for the fact, that it may appear as an isolated symptom or as part of the complex phenomena.

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[1] *Archiv für Anatomie Physiologie und Wissenschaftlichen Medicin, Jahrgang*, 1875, s. 174.

The essential cause of the symptom is without doubt a periodic variation in the functional activity of the automatic centre for respiration, and the philosophical work of Luciani must be credited with having for the first time established this fact. Whether the periodic variation depends simply upon the loss of the influence of higher regulating centres, or whether it is also at the same time the result of diminished vitality in accordance with some great natural law, it is not at present in our power to decide.

## APPENDIX.

Since the earlier portions of this paper appeared several contributions have been made to the subject, but in most of these there is but little which throws new light upon the symptom.

Tizzoni[1] has continued and extended his researches on changes in the medulla oblongata in a very interesting article, while Mancini,[2] Hauer,[3] and Macdonnell,[4] devote their attention to careful studies of the clinical features of the symptom.

Dixon Mann[5] describes changes in the bulb in connexion with Cheyne-Stokes respiration.

West,[6] describing at the Pathological Society of London the long continuance of Cheyne-Stokes breathing in a case of granular kidney, mentions that the pauses at times disappeared, leaving respiration of an ascending and descending type.

Mackenzie,[7] in the discussion which followed West's remarks, asked if patients ever recovered after they had developed Cheyne-Stokes respiration; and in answer to his question several cases are recorded. Hingston Fox[1] narrates one of influenza with bronchopneumonia, O'Neill[2] one of a febrile affection, Mallins[3] one of cerebral hæmorrhage, Flux[4] one of puerperal septicæmia, Adams[5] one of epilepsy and one of hydrocephalus, Aylward[6] one of phthisis in which morphine produced the symptom, Lawford Knaggs[7] one of renal disease, and Square[8] one of cerebral softening—all of which recovered. It is very interesting to note that Knaggs found a brother and a sister both suffering from renal disease and both showing periodic respiration.

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[1] *Memorie dell'Accademia d. Scienze di Bologna*, tomo viii., p. 3, 1886–88.

[2] *Bolletino d. Ospedale di Santa Casa di Loreto*, tomo i., 533, 1887–89.

[3] *Prager medicinische Wochenscrift*, Band xiv., s. 373, 1889.

[4] *Montreal Medical Journal*, vol. xviii., p. 294, 1889–90.

[5] *The British Medical Journal*, vol. i. for 1890, p. 427.

[6] *The Lancet*, vol. i. for 1890, p. 545.

[7] *Ibid.*, *loc. cit.*

Pilkington[9] describes a case of cardiac disease with softening of the left cuneate lobe, third right temporal convolution, and right anterior pyramid of the bulb.

Downs[10] has described a case of uræmia in which Cheyne-Stokes breathing occurred, and criticises some of the recent work on the subject, while Brush[11] records the case of an insane patient with chronic degenerative changes in the heart and bloodvessels who showed the same symptom.

An important contribution to the subject is contained in Broadbent's recent work on the Pulse.[12] He is of opinion that the symptom is mainly conditioned by a state of high arterial tension. No doubt the periodicity of the respiration is very frequently found in association with affections in which high arterial tension is a prominent symptom, as, for instance, granular degeneration of the kidney. But it has to be remembered, on the one hand, that both the high blood-pressure and the periodic breathing are consequences of the same change, while, on the other hand, Cheyne-Stokes breathing is often seen with low arterial pressure. Hence, as was shown before, this view is untenable.

Boyd[13] describes the earlier part of the forced respiration as mainly inspiratory, and the latter as principally expiratory, and refers to tracings of the pulse to prove this. It may be mentioned, however, in passing, that the respiratory curve shows nothing that can be held to support this view, and that the numerous cases unaccompanied by any pulse changes disprove it.

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[1] *The Lancet*, vol. i. for 1890, p. 571. [2] *Ibid.*, p. 620. [3] *Ibid.*, *loc. cit.*
[4] *Ibid.*, *loc. cit.* [5] *Ibid.*, p. 674. [6] *Ibid.*, *loc. cit.* [7] *Ibid.*, p. 744.
[8] *Ibid.*, p. 776. [9] *The British Medical Journal*, vol. i. for 1890, p. 819.
[10] *Medical News*, vol. lvi. p. 589, 1890.
[11] *Ibid.*, vol. lvi. p. 592, 1890.
[12] *The Pulse*, p. 169, 1890.
[13] *The British Medical Journal*, vol. i. for 1891, p. 1337.

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## REVIEWS.

*Frambœsia* (*Yaws*). By J. NUMA RAT, Medical Officer, Leeward Islands, West Indies. With Prefatory Remarks by JONATHAN HUTCHINSON, F.R.S., LL.D. London: Waterlow & Son: 1891.

THIS interesting essay contains the most complete account of recent years on a subject of much practical and scientific importance. The author, Mr Rat, has had many opportunities of treating yaws during several years' residence in South America, the West Coast of Africa, and the West Indies, and has prepared this compilation as an introduction to its study for those officers of the Colonial Medical Service who possess no knowledge of the disease. Its value is not limited to them, and all the more as it comes to us endorsed by Mr Hutchinson, who has contributed a critical, thoughtful, and suggestive preface, in which he has admirably summarized the facts ascertained, and arranged them in accordance with the space-for-time method.

Mr Rat commences the consideration of the disease by an inquiry into the origin of the words "yaws" and "pian," terms applied to frambœsia. The history and geography next occupy his attention. Though most common among African races, it seems impossible to decide whether it was introduced into America by African slaves, or whether it already existed among its aboriginal inhabitants. It is now widely distributed.

Frambœsia may be divided into four periods or stages,—1. The incubation stage. This averages from three to ten weeks, but there are no special symptoms to be noted in connexion with it, any derangement of health which may occur being attributed to an incipient catarrh, or malarial fever, or disordered digestion. 2. The primary stage. Though in most of the cases in which the disease is accidentally contracted there is no record of a local change to indicate the point at which the virus entered the body, yet there is a primary lesion connected with yaws which is as characteristic of the affection as the chancre is of syphilis. This, when fully developed, consists of a papule, which at the end of about seven days develops a pale yellow fluid at its apex. The fluid dries in course of seven days more, and when the scab so formed is removed, an ulcer is disclosed, with sharp cut edges and a clean granulating floor, which may occupy two months in healing. 3. The secondary stage. This commonly begins a couple of weeks after the disappearance of the primary lesion. The cutaneous eruptions of this stage are preceded or accompanied by fever—paroxysmal, often quotidian, and muscular and articular pains of varying intensity. The duration of the fever and pains varies;

they generally cease in two or three weeks. The eruption, when it first appears, is not unlike lichen tropicus, the patient being covered from head to foot with minute red spots, the skin presenting the aspect of having been irritated by long-continued excessive perspiration. The rash begins on the head, and develops from above downwards. The greater portion of the spots fade after the third day, only a few becoming papules. On the seventh day the apices of the papules, now conical, assume a pale yellow tint. This is not due to the presence of lymph or pus, but to a substance in no way different from the inspissated secretion of the sebaceous follicles. On a black skin this imparts the idea of a number of minute pieces of yellow wax having been stuck on here and there. The papule now becomes transformed into a tubercle. The papule expands and becomes cylindrical; the yellow substance at the same time enlarges, forming a thick yellow crust. This, when removed, exposes a mass of granulation tissue covered with a creamy secretion, acid in reaction; with their yellow crusts slightly raised above the skin, the tubercles are remarkably like the tops of cauliflower which has become yellow from being kept in pickle. The skin at this period exhales a sour or musty odour, while the general condition is more or less anæmic, and there is itching, sometimes very distressing to the patient. The tubercles in course of some six weeks become paler, and shrivel, leaving eventually maculæ, which are seldom completely effaced. There is some degree of sympathetic enlargement of lymphatic glands, but no alterations which are a special result of the yaws poison. In some cases the tubercles ulcerate. The disease is most common in infancy or childhood, and runs a milder course in them than when adults are attacked. Even in the weakly, when no treatment has been adopted, the complaint usually terminates in course of nine months, but in a certain proportion a tertiary stage occurs. 4. Tertiary period. When, either from individual predisposition, constitutional debility, injudicious treatment, or unsuitable food, the system is unable to expel the disease during the secondary period, in which the lesions are limited to the skin and other superficial tissues, the deeper structures then become involved, and changes are brought about by which extensive destruction of deep tissues are effected. One or several of the ulcers may become chronic, and extend deeply into the subcutaneous tissues. There is a superficial serpiginous form of ulceration which may occur at this period, originating, perhaps, several years after the disappearance of the secondary tubercles, which generally attacks the front part of the leg below the knee, but may cover it entirely. It is made up of small subcutaneous tubercles, which ulcerate and become indelible cicatrices. The most characteristic ulcers of this period are those originating in dome-shaped subcutaneous nodules, similar in appearance to the gummata of syphilis, and varying from a quarter of an inch to an inch in diameter. There may also be destructive ulceration of the nares, pharynx, and soft palate, the formation of nodules under the periosteum, and a myositis causing either atrophy or permanent curvature. Yet, though in severe cases the general condition is that of pronounced cachexia, it is surprising to what an extent these tertiary lesions may exist without seriously impairing the health. As to the diagnosis, reasons are given for assuming that pian is identical with yaws, while verruga Peruviana is an entirely distinct complaint.

The relationship of frambœsia to other diseases which more or less resemble it is of much relevancy from a scientific point of view. Among such are parangi, an endemic disease of Ceylon, Delhi boil, and button scurvy in Ireland, the latter in some respects resembling mycosis fungoides. But the similarity of the symptoms and course of yaws to those in syphilis has led some to regard it as a variety of that ailment. Here the remarks made by Mr Hutchinson are of much value. He puts very plainly the arguments in favour of and against the identity of yaws and syphilis, and then asks the question, whether there exists a family of diseases allied to syphilis but not identical with it. The statements of Mr Rat and the observations of Charlouis go to prove "that syphilis may be contracted by those suffering from yaws;" and conversely, "that yaws may be contracted by those suffering from syphilis." Charlouis inoculated a patient suffering from yaws with syphilis successfully, and had under his care another case in which a patient who had frambœsia contracted syphilis. It is therefore improbable that "the two have ever, within historic periods, been other than specifically distinct." It seems very rare among Europeans; but on this Mr Rat remarks, "This is due rather to their avoidance of contagion than to racial immunity." Cases are very seldom seen in this country. An important case is, however, related by Liveing. Yet if button scurvy was yaws, as some hold, it did, at no very remote period, possibly even yet, exist in the south of Ireland.

Mr Rat enters very fully into the treatment of yaws, which on the whole is much the same as that now adopted in syphilis. We cordially recommend the paper to those at all interested in tropical diseases, who will find in the suggestions for inquiry formulated by Mr Hutchinson hints for future observation, which may do much to clear up many still doubtful points.

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*Syphilis in Ancient and Prehistoric Times.* By Dr F. BURET, Paris. Translated from the French, with Notes, by A. H. OHMANN-DUMESNIL, M.D. Philadelphia and London: F. A. Davis.

THE author begins his historical research by giving an account of the opinions held in France at present regarding the nature of syphilis. He ignores the fact, that a not inconsiderable number of authorities now hold that soft chancres and hard both arise from the same poison.

To quote his final dictum, he believes that "syphilis dates from the creation of man." To prove this, he has searched with very great industry and success the literature of China, Japan, Egypt, and India, not neglecting the Bible or the ancient histories of Greece and Rome.

A most interesting part of the investigation consists in the examination of the bones and teeth of prehistoric man; and it is difficult to refuse to believe that the nodes on the bones, and the shape and markings of the teeth, could be due to anything but syphilis.

In this country we are not accustomed to speak with such familiarity of Old Testament worthies as in the following passage:—"Bathsheba put on mourning, and David married her. She was delivered. . . . . But our two lovers had reckoned without the Lord, who, having had enough time to think, declared himself angry, and sent, always according to the legend, a prophet to David, to rail at him and warn him that he would be punished where he had sinned. It is probable that tertiary accidents rapidly declared themselves in this lecherous king."

The translation is well done; and the book, as a whole, is most interesting and convincing.

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*The Pathology, Diagnosis, and Treatment of Intra-Cranial Growths.* By PHILIP COOMBS KNAPP, A.M., M.D. (Harvard). Boston: 1891.

THIS monograph may be said to mark the great progress which has been made in the diseases of the nervous centre within the last sixteen years. Having now gained a great addition to our knowledge about the localisations of function in the cerebrum, we are better able to give precision to the diagnosis of tumours, and often to fix their site. Nevertheless Dr Knapp has to confess that there are still a large number of cerebral tumours which exhibit no symptoms worth mentioning. The author has studied the symptomology and pathology of these growths upon forty cases which came within his own observation, and having carefully studied the literature of the subject, he has presented us with a most useful book. The pages devoted to the surgical treatment will be found especially interesting. After treating the means of diagnosis, he points out the risks incurred in opening the cranium, and explains the method of procedure in trephining. Dr Knapp considers that when the skull is opened the surgeon should not hesitate to incise the dura mater, even though it does not appear to be altered in colour or in texture.

*Gastrostomy.* By N. SENN, M.D., Professor of Surgery and Clinical Surgery in Rush Medical College, Chicago. Reprinted from the *Chicago Medical Recorder*, January 1892.

THIS little reprint of fifteen pages contains an able and complete account of the operation of gastrostomy, first practised and named by Sédillot in 1849. The indications for, the results of, the operation, the method of its performance, the selection of time for it, and the after-treatment, are all well described, and full credit is given to previous operators and writers on the subject. Two woodcuts, illustrating the mode of opening the stomach so as to prevent leakage of gastric juice, are inserted, but their value is diminished by the manner in which the printer has inserted Fig. 1. upside down!

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*Human Monstrosities.* By BARTON COOKE HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania; and GEORGE A. PIERSOL, M.D., Professor of Histology and Embryology in the University of Pennsylvania. Part II. Philadelphia: Lea Brothers & Co.: 1892.

THE second part of this work fully maintains the high standard attained by the first. It is richer in plates and illustrations than the first portion, and deals with some of the more common varieties of the grave malformations, such as exomphalos and anencephalus. The authors favour the view that fœtal hydrocephalus is the great causal factor in the production of anencephalus, whilst the body clefts found in cases of exomphalos, etc., they attribute to the formation of amniotic adhesions. In these opinions they are in agreement with most teratologists of the present. We can fully endorse for this portion of the work all the laudatory remarks which we made concerning the first instalment.

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*Abdominal and Uterine Tolerance in Pregnant Women; as shown by the low rate of Mortality under severe lacerated and other Wounds, the result of direct Violence.* ROBERT P. HARRIS, A.M., M.D. Philadelphia: 1892.

THE title of this little book indicates fairly well its contents, for in it Dr Harris treats of wounds of the abdomen in pregnancy, and of the extraordinary fact that in such accidents a low maternal and infantile mortality prevails. After giving several instances of wounds of the abdominal and uterine walls by pitchforks, knives, etc., the author proceeds to analyze a series of twenty cases in which either the abdomen alone or both the abdomen and uterus were opened by the horn of an animal. These horn-rip Cæsarean sections resulted fatally to the mother in only four cases and to the infant in seven cases. Amongst the twenty collected cases is one which occurred in Edinburgh in the King's Park; this was mentioned by the late Dr Thatcher at a meeting of the Obstetrical Society in 1850, but no details of the after-history of mother and child (who both survived) have ever been published. We wonder whether any of the readers of this Journal have any knowledge upon this point. Dr Harris has succeeded in tracing the after-history of most of the other cases, and it would be very interesting to ascertain the subsequent events in the Edinburgh case also. The author brings forward some interesting explanations of the low rate of mortality in horn-rip sections compared with the comparatively high death-rate in surgical Cæsarean operations undertaken during labour.

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*Transactions of the American Gynæcological Society.* Vol. XVI.
Philadelphia: 1891.

THE record of the transactions of the American Gynæcological Society for the year 1891 forms a handsome volume. The Society mourns the loss by death of three of its founders, Fordyce Barker, Storer, and Lyman; and it has enriched its list of Honorary Fellows by the addition of Leopold, Olshausen, and Pozzi. With regard to the papers read at the annual meeting at Washington, whilst there is none that may be called epoch-making, there are many that are of very direct practical interest. Among those dealing with the medical aspect of gynæcology and obstetrics are those of Jenks, "The Therapeutic Aspects of some Ovarian Disorders;" of Fry, "Diabetes Mellitus Gravidarum;" and Davis, "Puerperal Pernicious Anæmia." More purely surgical subjects are discussed by Reeve ("Mixed Narcosis"), Baker ("Cancer of the Cervix Uteri"), Cleveland ("Laparotomy in Trendelenburg's Posture"), and Sutton ("A successful Porro Operation"). Harris of Philadelphia contributes another of his interesting communications upon the Cæsarean operation, and Currier supplements Engelmann's well-known work by a "Study relative to the Functions of the Reproductive Apparatus in American Indian Women." Garrigues also writes upon a subject which Engelmann has made specially his own—Posture in Labour, and comes to the conclusion that the best is a judicious combination of the dorsal and the lateral. Of papers dealing with the rarer conditions is one by H. Marion Sims, "A Unique Case of Multiple Neuro-Lipomata following Laparotomy," and another by Janvrin on "Primary Carcinomatous and Sarcomatous Neoplasms between the Folds of the Broad Ligaments."

The volume is, as usual, beautifully printed, and contains much that is well worth reading.

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*Transactions of the Obstetrical Society of London.* Vol. XXXIII.
London: Longmans, Green, & Co.: 1892.

THE Obstetrical Society of London shows signs of healthy vitality in its latest volume of Transactions. Undoubtedly the most important paper is that by Spencer, "On Visceral Hæmorrhages in Still-born Children," which occupies nearly 100 pages of the volume, and is beautifully illustrated with coloured plates. It is a valuable contribution to our knowledge of the pathology and pathogenesis of still-birth, and it abounds in sensible practical deductions concerning the management of obstetric cases. In breech cases the examination of the child's genitals is to be avoided, and traction should never be made upon the infant's waist, only upon the pelvis or limbs. It is shown that the use of the forceps is far more dangerous than is usually thought. Pressure upon the sterno-mastoid muscles in delivery of the after-coming head is also shown to be dangerous and is warned against.

Other interesting contributions are those of Phillips on the "Influence of Purpura Hæmorrhagica upon Menstruation and Pregnancy," and of M'Cann on "Chorea Gravidarum."

Hermann writes upon the "Relation between backward Displacement of the Uterus and Sterility and Abortion," and comes to the conclusion that the uterine displacement has little effect in leading to sterility and in producing abortion. He looks upon all the three conditions as manifestations of a condition of the general health. A specimen illustrating that very rare condition spondylolisthesis, which Neugebauer did so much to elucidate, was shown and described by Targett. There are several papers on extra-uterine gestation which are well worthy of notice, and several rare fœtal monstrosities are described. The volume is, like many of its predecessors, the record of a fruitful session's work.

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*Transactions of the Medical and Chirurgical Faculty of the State of Maryland.* Ninety-third Annual Session. Baltimore: Griffin, Curley, & Co.: 1891.

This volume of 400 pages contains the transactions of the Medical and Chirurgical Faculty of the State of Maryland at its semi-annual and annual meetings in November 1890 and April 1891. Papers dealing with the most widely separated medical subjects are found within its boards. There are communications upon the treatment of innominate aneurism, on fibroma of the nose and naso-pharynx, on prolapsus funis, multiple neuritis, immunity and protection from disease, physical education, milk fever, physiology of ganglion cells, and eye-diseases of the unborn infant. The annual address by Professor William H. Welch on "The Causation of Diphtheria" is a masterly and suggestive communication upon a difficult subject. The volume as a whole is a credit to the Maryland Medical and Chirurgical Faculty.

*Transactions of the American Orthopædic Association.* Vol. III. Philadelphia: 1890.

This volume contains a number of interesting papers by different authors on practical subjects, each paper being accompanied by a *verbatim* report of the discussion to which it gave rise amongst the members of the Association. Several of the authors' names are quite well known on this side of the Atlantic. Lateral curvature of the spine, club-foot, deformities of the lower limb following upon tubercular joint disease, are those which receive most attention in this year's volume, which in every respect is quite up to the high standard of its predecessors.

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*Plain Talks on Medical Electricity and Batteries.* By Horatio R. Bigelow, M.D. London: H. K. Lewis.

It is very difficult to understand what special object the author supposes he has served in writing this pamphlet. In his preface he says, "My intention has been to give the general practitioner and student a plain, practical presentation of a difficult subject. Ethical adornment and scientific discussions have been avoided." Including the index, the book extends to 85 small 8vo pages, a large proportion of which is occupied by illustrations of instruments. It is possible to understand that a medical practitioner or student might derive considerable advantage from "a plain talk" with an expert on such a subject as medical electricity, even though "ethical adornment and scientific discussions" were excluded; but what advantage he can gain from the perusal of a few pages of scrappy definitions and some illustrations of apparatus, much of it of doubtful utility, is not easily perceived. One may safely say that any one who understands this book knows a good deal more than it can tell him, and any one who hopes to learn anything of the medical applications of electricity from its perusal will lay it down with a profound consciousness that he might have spent his time to more purpose. It is to be supposed that the author has derived some pleasure from writing this book, and thus it may have served one useful end.

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*A Junior Course of Practical Zoology.* By A. Milnes Marshall, M.D., D.Sc., M.A., F.R.S., Professor in the Victoria University; assisted by C. Herbert Hurst, Ph.D., Lecturer in the Victoria University. Third Edition. London: Smith, Elder, & Co.

This work in plan and execution is admirable, and is one of the best books, if not the best, of its kind. The directions for dissection are clear, the descriptions are well arranged, and the topics selected for explanation from the points of view of physiology, embryology, and comparative anatomy, are judiciously chosen and skilfully treated. The drawings and the index greatly enhance the value of the book.

The authors evidently have devoted special attention to the correct use of terms, but they have not applied their principles universally. They have substituted spermotheca (why not spermatotheca?) for spermatheca of a former edition, but they retain *hilus* instead of *hilum*. Again they write "*liver*" and "*hepatic*" with commas when referring to a digestive gland in the cray-fish and cockroach respectively; but in the case of the snail and mussel they write liver without the commas. This is of some practical importance, since a writer of such eminence as Dr Milner Fothergill, in his *Dietetics*, was led into error by assuming the identity of oyster-liver with ox-liver. The authors' meaning is not clear when they state that the posterior part of the mediastinal cavity in the rabbit is *vacant*. In their description of the function of the placenta they give either too much or too little. The position, segmentally, of the eyes of the leech is not stated. "Inhalant" and "exhalant" are spelt incorrectly throughout the book. These and some other small defects might be amended in future editions; and without changing the character of the book, the authors might, in their directions for making certain of the dissections, say a little more on *how to do it*. Not every student that uses the book as his guide has a demonstrator to appeal to when "things don't come out right somehow."

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*Outlines of Practical Physiological Chemistry.* By F. CHARLES LARKIN, F.R.C.S. Eng., late Assistant Lecturer in Physiology, University College, Liverpool; and RANDLE LEIGH, M.B., B.Sc. Lond. Second Edition, Enlarged and Revised. London: H. K. Lewis: 1891.

THIS little book was originally compiled for the students of University College, Liverpool, and aims at being a guide to students working through a course of Practical Physiological Chemistry It admirably accomplishes the object for which it is intended.

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*The Human Figure: its Beauties and Defects.* By ERNST BRÜCKE, Emeritus Professor of Physiology in the University of Vienna, and formerly Teacher of Anatomy in the Academy of Fine Arts in Berlin. With a Preface by WILLIAM ANDERSON, Professor of Anatomy to the Royal Academy of Arts, London. London: H. Greval & Co.: 1891.

THIS work is primarily addressed to artists, but all those who are interested in the artistic representation of the human body will find it a very interesting and suggestive work. It differs from the majority of text-books on artistic anatomy, in that no attempt is made to give a systematic description of the skeleton and superficial muscles. The author describes very carefully the surface form of the various parts of the body, and discusses very fully those variations in the figure which contribute to or detract from the ideal type of beauty. He constantly warns the artist against being misled by the imperfections of his model, which so rarely presents the ideal form that he desires to represent.

Prof. Brücke has evidently been a close observer both of the living model and the antique. The illustrations are beautiful specimens of wood engraving.

*Diuretin-Knoll as a Diuretic, Reports on Clinical Experiments.* Knoll & Co., Ludwigshafen, Germany.

THESE experiments—by Pfeffer, Vienna; Professor Balcock, Chicago; Dr Schmieden, Berlin; Dr Kress, Nuremberg, etc.—all go to show the power of diuretin as a diuretic, and its great therapeutic value in many forms of dropsy.

# Part Third.

## MEETINGS OF SOCIETIES.

## MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

### SESSION LXXI.—MEETING VII. (EXTRA).

*Tuesday, 22nd March* 1892.—Mr JOSEPH BELL, *President, in the Chair.*

### I. EXHIBITION OF PATIENTS.

1. *Dr Michael Dewar* showed a patient with UNUSUAL DENTITION. J. S., aged 35, who, though not altogether an edentate, yet was almost one. In his own words, "he has all the teeth ever he had." He had no temporary teeth whatever. When four years old, he was taken by his mother to the doctor, who lanced his gums, probably as a "placebo." The permanent teeth which had developed were ten in number, viz., two bicuspids and first molar on each side in the upper jaw, and second bicuspid and first molar on each side in the lower jaw. The question naturally arose how in the absence of the milk teeth there could be development of the bicuspids, seeing that the sacs and follicles of the anterior ten permanent teeth were formed almost simultaneously in the early fœtal months, and in conjunction with and behind the milk germs. The permanent molars, as we know, are developed independently of the temporary teeth. As regards heredity, the evidence was negative. His parents, brothers, and sisters, had all their natural complement of teeth, and, as far as could be learned, the grandparents also. These cases are not very common,—at least

there are not many recorded. Mr Cooper of Edinburgh supplied many years ago a full dental set to a young lady who had no teeth whatever. The speaker was informed a few days ago that an Inverness dentist had a whole Highland family under his care who were edentates, but as the history could not be got, the accuracy of the statement could not be vouched for.

*Mr Joseph Bell* mentioned a case which in some respects resembled that of Dr Dewar's.

2. *Mr Caird* showed—1. A boy, aged eleven, who had been violently struck on the head by a swing boat, which caused a depressed compound comminuted fracture of the right frontal region. Brain matter was scattered over the head, and two fragments of skull were removed from the frontal lobes. After careful purification of the wound, the dura was sewn and the fragments replanted. Sepsis, however, followed; one portion of bone was removed within a week, and the second portion was cast off in a couple of months. The hernia cerebri which had formed rapidly diminished after the bone came away, and the boy, lively and intelligent, exhibited no ill effect from his accident. There was a large pulsating scar. It was proposed that he should wear a protecting shield, but at some future date an attempt might be made to cover in the gap by an osteo-plastic operation. 2. A patient on whom Chopart's amputation had been performed after a crushing accident. The wound healed by the second intention, but the result was excellent, there being absolutely no pointing of the foot, and this although the tendo-Achilles was not divided.

## II. Exhibition of Specimens.

*Dr Michael Dewar* showed—1. A large-sized HOUSEHOLD PIN, which was swallowed by an infant eighteen months old, and passed per rectum, point first, in 61 hours. 2. A small DENTAL PLATE, which was swallowed by a lady while asleep, and passed per rectum in 55 hours. The treatment consisted in the exhibition of soft, bulky, farinaceous and vegetable food, and no medicine.

## III. Exhibition of Instruments.

1. *Dr P. M'Bride* showed a NEW FORM OF LARYNGEAL FORCEPS, described at page 1098 of this Journal.

2. *Dr R. M'Kenzie Johnston* showed an ELECTRICAL AID TO HEARING.

## IV. Original Communications.

1. *Dr Alexander Miles* read a paper on THE MECHANISM OF CEREBRAL CONCUSSION. After briefly reviewing the older theories of concussion, he went on to consider the view that the symptoms were due to a reflex vascular disturbance whereby an anæmia of the brain was produced, which led to all the phenomena of the condi-

tion. He believed that the cerebro-spinal fluid, which surrounds the brain, fills the ventricles, and surrounds the bloodvessels and nerve-cells, was thrown into a violent state of agitation when the cranium received a blow; and that this fluid-wave impinging on the parts in the region of the bulb, produced a reflex spasm of the cerebral bloodvessels, whereby the brain was rendered anæmic. He described certain experiments which appeared to prove that the hæmorrhages, gross and microscopic, which invariably accompanied cerebral concussion, were produced as a result of this cerebro-spinal fluid-wave. On *rapidly* aspirating the cerebro-spinal fluid from the skull of a rabbit, he found that hæmorrhages of varying sizes took place all through the brain substance, into the sub-arachnoid space, and into the ventricles, in no way differing from those resulting from a severe blow. When the fluid was *slowly* aspirated, and the bloodvessels thus given time to accommodate themselves to the loss of support, no hæmorrhages were found; and when a severe blow was dealt after the fluid had been withdrawn, the brain and its membranes exhibited no hæmorrhages or lacerations, thus evidently showing that the cerebro-spinal fluid was the essential factor in the production of these lesions. To demonstrate that the wave set up in the fluid was the cause of the hæmorrhages, one eye of a rabbit was enucleated and a fatal blow dealt on the occiput. In the sheath of the normal eye there was found a large blood-clot, while on the other side, where the cerebro-spinal fluid could freely escape from the severed nerve-sheath, no such clot was present. Dr Miles's conclusions were briefly—(1.) That the group of phenomena commonly known as concussion of the brain was the result of a temporary anæmia of that organ; (2.) That this anæmia was the reflex result of stimulation of the restiform bodies and other important centres in the region of the bulb; (3.) That these parts are stimulated by the wave of cerebro-spinal fluid which rushes through the aqueduct of Sylvius, the foramen of Magendie, and from the sub-arachnoid space of the brain to that of the cord, when a severe blow was dealt over the skull; (4.) That the hæmorrhages found throughout the brain substance and on its surface were to be ascribed to the recession of the cerebro-spinal fluid, which naturally supports the bloodvessels of the cerebrum; (5.) That the cerebro-spinal fluid-wave of necessity affects the ultimate nerve-cells which were normally suspended in the fluid; (6.) That the hæmorrhages, while they doubtless give rise to symptoms, were not the proximate cause of those of concussion as usually met with. They are rather "to be looked upon as an index of the force of the blow than as the cause of the resulting phenomena."

*The President* expressed his admiration of the scientific method and great industry which was shown in the paper.

*Prof. Struthers* had listened to Dr Miles's paper with very great interest and instruction. He could not but admire the completeness with which Dr Miles had followed out the water passages of the brain, and appreciated their importance. It was quite interesting to him to find parts which he remembered as having been regarded as only a subject for the curiosity of anatomists now come to be regarded as of so much importance in pathology and surgery.

*Mr A. G. Miller* had listened with much pleasure to Dr Miles's paper, but had no criticisms to offer.

*Dr Clouston* said that in his opinion Dr Miles laid too much stress on the effects of the brain anæmia, and too little on the direct effect of sudden impact and violence on nerve action, whether conducting through the white fibres or the energizing of the gray matter. We knew that such impact had a directly paralyzing effect on nerve actions, and that the anæmia and the congestion and the ruptures were due to a previous paralysis of the vaso-motor centres which exist all over the brain. In fact, the circulatory effects were secondary and not primary. He urged Dr Miles to repeat his experiments, and, further, to definitize them by using regulated and measured impacts by means of delicate instruments. He pointed out that the intra-cranial contents were compound, consisting of fluid and solid contents, and that both must be taken into account in explaining the effects of impacts. He pointed out that the immediate and instantaneous mental effects of impact could only be explained by direct action on the nervous tissue. He referred to the importance of Dr Miles's experiment of aspirating the cerebro-spinal fluid, and concluded by congratulating Dr Miles on the industry and ingenuity he had displayed in this important investigation.

*Dr P. M'Bride* begged to thank Dr Miles for his most interesting paper, and asked a question as to the explanation given by Dr Miles of the escape of cerebro-spinal fluid from the ears without fracture.

*Dr Miles*, in reply to Dr Clouston, stated that the instrument used to inflict the blows was a Kaffir-stick, so that the point of contact between the skull and the knob was a very limited one, and therefore the force of the blow was concentrated on the point of impact. He pointed out that Duret's experiments were unsatisfactory, in so far as they consisted in forcibly injecting coagulable materials into the cavity of the skull, a method which was in no way comparable to the method in which head injuries are sustained. In other cases Duret dealt *numerous* blows to the skull. He pointed out that Roy and Sherrington's experiments were fallacious, as they provided for a free escape of the cerebro-spinal fluid during the experiment. He emphasized the point that the nerve-cells were acted upon through the medium of the cerebro-spinal fluid in which they floated, and that the cerebral circulation was reflexly disturbed by the wave of fluid stimulating the parts in the region of the bulb. In reply to Dr M'Bride, he stated that his reference to the escape of cerebro-spinal fluid from the ear while no fracture of the base existed was incidental, and had no direct bearing on his argument, but that the mechanism under discussion threw some light on those clinical cases which have been recorded by Bryant, Hutchinson, Battle, Le Gros, Clerk, and others, in which welling from the ears was a prominent symptom in the absence of basal fracture. Referring to Dr Symington's remarks on the anatomy of the rabbit's brain, he stated that the aqueduct of Sylvius was by no means a microscopic opening.

2. *Dr W. Towers Smith* read his paper on THE DIETETIC TREATMENT OF OBESITY.

*The President* hoped that the paper might elicit discussion on the subject.

*Dr James Ritchie* asked whether Dr Towers Smith meant literally that the weight should be reduced as rapidly as possible. The speaker had found evil effects from a very rapid reduction, and guarded his patients accordingly. Dr Towers Smith recommended a purely nitrogenous diet—did he mean this absolutely, and did he get his patients to carry out his recommendations for any prolonged period of time? Although dieting is a very important matter, nevertheless some people have such a tendency to the deposition of fat, even when put upon spare diet, that other methods were important. Dr Towers Smith had told us the kinds of alcoholics which he recommends. Dr Ritchie considered alcohol prejudicial in obesity, because it interfered with oxidation and favoured the deposition of fat. Stout people are usually thirsty beings, and the speaker agreed with Dr Towers Smith that a considerable quantity of water was essential to them in order to favour the elimination of waste products, but as large quantities of fluid at wrong times favoured the production of fat, did he lay down any rule as to the times at which fluid should be taken? Dr Ritchie recommended little fluid at meals, but a fair quantity three hours afterwards. What regulations as to exercise were recommended? Were forty winks after meals proscribed?

*Dr Hunter* said they were indebted to Dr Towers Smith for bringing his paper before the Society, but he would have conferred greater obligation had he gone into some details regarding his diet tables, *e.g.*, what were the varieties of nitrogenous foods he allowed for breakfast, lunch, and dinner. It would also have been satisfactory to have had some rational or scientific brief explanation of his dietary on physiological principles. Dr Towers Smith had stated that the proper proportion of nitrogen to carbon in foods was given in works on dietetics as 1 to 4, but it is pretty generally agreed that the ratio is as high as 1 to 15. Physiologists knew that life could be maintained satisfactorily for a considerable time on water and nitrogenous food alone, and the explanation was, that a considerable proportion of the latter during its tissue metabolism became converted into fat. This really meant that the plan of diet recommended by Dr Smith was a modified starvation one, for the carbonaceous food had to be derived from the proteids, and the latter must therefore *pari passu* be diminished.

*Dr Church* regretted that a dietary had not been given, and also that so little reference had been made to the subject of fresh air and exercise in the paper. Some people who took very little food, and many who took a well-proportioned amount of nitrogenous and non-nitrogenous food, but who, by deficient exercise in the fresh air had not their blood sufficiently oxygenated, suffered from obesity. Dieting alone without due regulation of exercise out of doors could not healthily reduce obesity. Indeed, exercise must go hand and hand with dieting in the treatment of the condition.

*Dr M'Bride* regretted that the paper did not contain some practical hints as to daily dietaries, which might have been of some utility.

*Dr Boyd,* in adding his thanks to those of other members, would like to ask a question. Dr Towers Smith quotes some experiments on diet where the nitrogenous excretion was estimated by the amount of the uric acid which was passed. Now, one would like to know how much nitrogen was being taken by the food? How much exercise was being taken? How much nitrogen was being excreted by the bowel? Without these data, Dr Boyd did not think that any conclusions could be drawn from the experiments.

*Mr Cotterill* asked Dr Towers Smith if he could explain how it was that there was no inclination to a return to obesity after his treatment, when in the case of athletes, who reduce their weight by a somewhat similar process, there is usually a rapid return to the normal weight.

*Dr W. Towers Smith* said, in reply to Dr James Ritchie, that with regard to the rapid loss of weight the essence of his system of dietetic treatment consisted in the rapid reduction with safety. No doubt it was better to avoid alcohol if possible. He had found that the least hurtful form was Scotch whisky. If a lean and a stout man took exercise, the stout man excreted by the skin more and required fluid. As the diet consisted in the earlier stages principally of nitrogenous material, a large amount of fluid was required. Dr Hunter had suggested details of the diet, but no two people were treated alike. There was no starvation possible, as the amount of food ordered was unlimited. Nitrogenous food did not make fat, a destructive metabolism went on, and so a large amount of fluid assisted the carrying off of the burnt carbon. Dr Church had asked for diet tables, but these varied in individual cases. In Sir A. Garrod's experiments the amount of urine passed in 24 hours was collected in each case, and the percentage of uric acid determined by analysis. Exercise, beyond a moderate amount of walking, formed no part of the treatment.

# OBSTETRICAL SOCIETY OF EDINBURGH.

## SESSION LIII.—MEETING VI.

*Wednesday, 13th April* 1892.—Dr JOHN PLAYFAIR, *one of the Vice-Presidents, in the Chair.*

I. *Dr Church* read his paper ON PULMONARY THROMBOSIS, which will appear in a future number of this Journal.

*The Vice-President* said he was sure he was reflecting the feelings of the Society when he said that they were deeply indebted to Dr Church for bringing before them this interesting and instructive case. Fortunately such cases were rare, but when they did occur, they were so sudden in their onset, and often so rapid in their course, that it was well they should have a clear idea of their nature, so that any assistance they could render to the patient should be prompt and properly directed. Dr Church's lucid history of his case, and his remarks on its nature and treatment, supplied them with this clear idea. As to the cause of the thrombosis in Dr Church's case, he thought that possibly it was due to the rheumatic condition of the patient, and the highly fibrinous state of the blood known to exist during pregnancy. It was possible that the rheumatic state of the patient might have produced a little roughening of the pulmonary artery, and so have given a starting point to the thrombus. The clot must have originated in the heart or pulmonary artery, as there was no evidence of any blocking of a peripheral vessel, from whence an embolus might have been carried. Dr Church's proposed treatment, by supplying excess of oxygen, seemed to him likely to be of great service. If the limited stream of blood passing by the side of the clot into the lungs could be hyper-oxygenated, life might be preserved, and so time given for absorption of the clot.

*Dr Berry Hart* thought Dr Church's paper a valuable clinical one. It was impossible, he thought, to explain the cause, though Dr Church's view was ingenious. The main difficulty in accepting it was that such cases should be very common if the theory were correct.

*Dr Cullen* had listened with great interest to Dr Church's paper, and would only wish to make a single remark thereon. He was doubtful as to the value of oxygen in these cases. It was well known that the oxygen forms a compound with the hæmoglobin of the blood, and under ordinary circumstances the hæmoglobin is entirely converted into the oxidized compound in the lungs. Thus, so far as the hæmoglobin is concerned, it could not take up more oxygen even if the person inhaled that gas in an undiluted form. Only a very small amount of the oxygen in the blood was carried by the serum, but that oxygen was not supposed to have the same value as regarded tissue change as the gas carried by the hæmoglobin. Inhalations of pure oxygen, then, could only increase the amount of oxygen in the serum of the blood, and that to any extent only under increased pressure.

*Dr James Ritchie* thought that Dr Church had very lucidly given the probable etiology of his unique case, but the speaker was of opinion that the condition of the pulmonary circulation during the pains would also favour the occurrence of thrombosis. He thought that experience was more valuable than theory, and Lauder Brunton's case was a practical demonstration that inhalation of oxygen did in certain conditions improve the oxidation in the blood. Although the amount of oxygen in the atmosphere is enough to maintain the aeration of the blood when the circulation in the whole of the lung is available for the process, and although in such circumstances an increase in the depth of inspiration is not followed by an increase in the amount of oxygen absorbed, yet when a large portion of the lung was cut off from duty it seemed evident from experiment that the blood could utilize a larger amount of oxygen than the atmosphere contained normally.

*Dr Church*, in thanking the Society for their favourable criticism of his paper, thought that further clinical study would show that greater aeration of the blood takes place with the more free inhalation of oxygen where the natural conditions of respiration are interfered with. Physiologists admitted that with increased atmospheric pressure more air was taken into the lungs. A larger volume of air could not be taken up, but an equal volume with increased density could. Hence it could be logically maintained that more oxygen might be introduced into the system in time of need. In a case of asphyxia every physiological effort would be made to utilize all oxygen within reach of the blood. The subject was a difficult one in physiological chemistry, but it was to be hoped that *laboratory* would harmonize with *clinical* observations.

II. *Dr Michael Dewar* read A NOTE ON THE USE OF AXIS-TRACTION FORCEPS IN THE HIGH AND LOW OPERATION, which will appear in a future number of this Journal.

*The Vice-President* said the Society was greatly obliged to Dr Dewar for his very able and interesting paper. He was sure they all agreed with him in urging the immense superiority of the axis-traction forceps over the ordinary long forceps. Personally he also heartily concurred with Dr Dewar's remarks on the great comfort in using the axis-traction forceps compared with the Simpson forceps. There might be a little trouble at first in getting the handle of the tractors fixed, but that over, the ease in farther manipulation was wonderful.

*Dr Berry Hart* thought Dr Dewar's paper one of great interest. It was most valuable to know the practitioner's opinion of new appliances, whether they were available and useful under the conditions of private practice. He was glad Dr Dewar's opinion was so entirely favourable to the use of the axis-traction forceps. The unfavourable view Dr Dewar took of version was hardly warranted if it was tried after forceps. The question of version or forceps was a difficult one, but so far as the rachitic pelvis was concerned, he held version to be preferable. The use of axis-traction had, however, re-opened the question, and he had no doubt it would be settled in time, without the acrimony of the old debates.

*Dr J. C. Webster* had shown at an earlier meeting in the session the head of a child which had been delivered by means of axis-traction forceps in a flat pelvis. The head had been grasped antero-posteriorly, and, owing probably to the great over-riding of the frontals by the parietals, as well as to the bulging of the vertex, rupture of the longitudinal sinus had been caused, leading to death of the child. It had always been supposed that intra-cranial hæmorrhage was an almost necessary accompaniment of the use of forceps in flat pelvis, and it had occurred to Dr Webster to try a series of experiments on fresh still-born children in order to determine what intra-cranial lesions were produced. Four children were obtained, two of which had died from pressure on the cord during delivery; the cause of death in the other two cases, obtained from the Maternity, could not be made out. Three of these were drawn by means of axis-traction forceps through rickety pelves of various degrees of antero-posterior brim-contraction; the internal jugular veins were then injected with coloured blood-serum. In the other case the injection was made previous to the use of the forceps. In all cases the coloured fluid was found on dissection to have escaped from the intra-cranial vessels, either into the dura, the falx or tentorium, or through the dura into the sub-arachnoid space on the upper part of the brain or about its base. Dr Webster at first thought that these experiments showed the great danger to the child from the use of forceps in flat pelves, even taking into consideration the different conditions in the case of the operation during life and in the experiment on the dead child. Recently, however, in a valuable paper by Spencer ("On Visceral Hæmorrhages in Still-Born Children, etc.," *Lond. Obstet. Trans.*, vol. xxiii. p. 203), a detailed account of a series of 130 autopsies on fresh, mostly still-born, fœtuses had been given, and these examinations showed that intra-cranial hæmorrhages as well as other hæmorrhages occurred "in cases delivered naturally, or by version, or by forceps, through normal and abnormal pelves; in primiparæ and multiparæ; with large and small children; in easy and difficult, rapid and prolonged labours." In view of these facts, Dr Webster considered that his experimental results were worthless since the rupture of the intra-cranial vessels might have taken place in connexion with the birth of the fœtuses, and not as a result of the post-mortem experiments. He believed that only extended clinical experience could determine the relative value of turning and forceps as a means of treatment in cases of flat pelves. It is interesting to note that Spencer's cases show that cerebral hæmorrhage is most frequent with forceps delivery and least in normal vertex delivery, and that it is greater in breech cases than after version. He does not, however, specify the variety of forceps used. Unless he had reference to the axis-traction forceps, his results will not in the least help to settle the question recently raised by Milne Murray, as to the best mode of delivering the child through a brim contracted in the antero-posterior diameter, since the action of the axis-traction forceps is very different from that of the ordinary long forceps.

*Dr Dewar* thanked the Fellows for their kind reception of his paper. As regards the question of "Version *v.* Forceps," he did not wish to imply that his results led him to believe that forceps were in all cases superior to version, for version in the majority of his cases was only performed after failure with the long forceps. In a country practice, with a constantly shifting population, one does not always know what kind of a case one has to tackle till the actual delivery takes place. But he feels confident that the use of axis-traction forceps will reduce version to a minimum. As regards the comfort of the medical man, he has a very vivid recollection of the many awkward positions he had to assume, especially when attending a case in a box-bed.

III. *Dr J. W. Ballantyne* read the fifth of his "STUDIES IN FŒTAL PATHOLOGY AND TERATOLOGY,—THE ANATOMY OF THE ANENCEPHALIC FŒTUS, STUDIED BY MEANS OF FROZEN SECTIONS."

*The Vice-President* said the Society was extremely indebted to Dr Ballantyne for giving them another of his Studies on Fœtal Pathology and Teratology. It was not a subject that lent itself to discussion, but they must all have admired the exquisite and life-like drawings he had shown, and must also have all greatly appreciated his clear and concise description of them.

*Dr Cullen* congratulated Dr Ballantyne on his excellent and painstaking paper. He had an anencephalic fœtus lately, in which he was unable to find any supra-renals. He was astonished at the time, but put the matter down to hasty dissection. He is disposed to think now that they were really absent, especially as such an abnormality seems common in anencephaly. Lobstein and Meckel had noted this fact early in this century. Meckel mentions a case where the left kidney and supra-renal were absent, just as in Dr Ballantyne's fœtus, and the right capsule was very small, though the right kidney was normal. In another case, the supra-renals were both absent and the kidneys were joined together, the left one being much atrophied. Dr Ballantyne had not spoken with regard to the sex in these cases. Morgagni seems to have been the first to point out their relative frequency in female infants. He has been followed in this observation by most authorities up to the present day. Dr Ballantyne mentioned hydrocephalus as being one of the supposed causes of this condition. That it is more probably due to this than to arrest of development is very likely, because of the few specimens to be found in the early months. Anencephaly is almost never seen before the fourth or fifth month. If we suppose a hypersecretive action of central canal of cord and ventricles of brain, as Cleland and others have suggested, then we can readily understand how the head is enlarged and thinned till it and the brain disappear before the secreted fluid. We do not know much of the chemistry of the liquor amnii, but it would be interesting to contrast the analysis of normal fluid with that found in the hydramnios of anencephaly, and to compare that last with the fluid found in spinal canal. It would at once indicate if the increase of liquor amnii was due to the secretion from spinal cord and brain.

*Dr Church* felt that the Society was much indebted to Dr Ballantyne for this scientific paper, and for all his work on fœtal pathology. Many of the Fellows had not an opportunity for this kind of inquiry. It was interesting to learn that the ancient Egyptians as far back as the time of Moses have handed down specimens helpful in the study of teratology.

*Dr Ballantyne* replied.

# Part Fourth.

## PERISCOPE.

### MONTHLY REPORT ON THE PROGRESS OF THERAPEUTICS.

By William Craig, M.D., F.R.S.E., Lecturer on Materia Medica, Surgeons' Hall, etc., etc.

Nitroglycerine in the Treatment of Raynaud's Disease.—Cates (*University Medical Magazine*, vol. iv., No. 5, 1892) reports a case of Raynaud's disease—that is, symmetrical gangrene of the extremities—in which great relief was obtained by the injections of nitroglycerine, commencing with $\frac{1}{100}$ of a grain, and gradually increasing the dose up to $\frac{1}{50}$ of a grain, three times a day. The patient grew better, sores healed, and the pain disappeared like magic, so that the routine duties of life were again made possible. —*Therapeutic Gazette*, March 1892.

Sulphate of Cinchonidine in the Treatment of Various Types of Malarial Poisoning.—In the *Bulletin Générale de Thérapeutique* for December 30, 1891, there appears a paper upon the subject, the author being Gemagel. After detailing a number of cases in which he employed this alkaloid of cinchona in preference to quinine, he reaches the conclusion that cinchonidine is equal in rapidity of action and efficiency to quinine, if not superior to it, producing in all the cases to which he has given it brilliant results. He has found it particularly useful and advantageous in those fevers which have resisted quinine. Neither does he believe it to have the contra-indications which often exist against the use of the older alkaloids. He orders one and a half drachms of sulphate of cinchonidine, divided into four powders, and that one of these shall be taken the first, second, fourth, and the sixth day. On the third and fifth day the treatment is suspended. In the course of the following week the same treatment is repeated. By this means he endeavours to prevent a return of the disease, which of course is very important. The time which is best for the administration of the drug is just before going to bed. In this way the inconvenience of buzzing in the ears or other disagreeable symptoms, such as nausea, are escaped. However, if the attacks are severe, it is well to give the cinchonidine at other times. It is hardly necessary to add that arsenic, iron, and hydrotherapy are useful adjuncts to cinchonidine in the treatment of chronic malaria.—*Therapeutic Gazette*, March 1892.

THE TREATMENT OF HÆMATO-CHYLURIA WITH THE BICHROMATE OF POTASSIUM.—Diago has reported to the Clinical Society of Havana results which he obtained by the administration of the bichromate of potassium in seven cases of hæmato-chyluria. The dose which he has administered is ⅓ to ½ grain in half a pint of water. In three of the cases the filaria were found, and in four others there was profound anæmia. This medication was employed to the exclusion of all other treatment. Of the cases four were cured without other treatment, and two in forty-eight hours, while the others found relief in about fifteen days. The three cases which were complicated by the presence of filaria were found most rebellious to treatment. The author believes that the bichromate of potassium is a very useful remedy in the treatment of the malarial pernicious anæmia of the tropics. (*Revue Internationale de Bibliographie Médicale*, February 1892).—*Therapeutic Gazette*, April 1892.

ANTIPYRIN IN DIPHTHERIA.—Vianna (*Sem. Med.*, March 30th 1892) has found that antipyrin has a marked bactericidal and toxinicidal action on the bacillus diphtheriæ. He finds—first, that addition of the drug to culture media in the proportion of 2½ per cent. renders these unsuitable for the nutrition of the microbe; secondly, that when added in the same proportion to actively growing cultures it causes their death within forty-eight hours; thirdly, the toxines are also destroyed, for cultures treated as above, and also filtered cultures to which antipyrin is added, prove much less virulent to guinea-pigs than the original cultures, animals living 5 to 8, 12, 15, 20, and 24 days, as against 3 days for the control. Vianna, therefore, strongly recommends antipyrin as a therapeutic agent in diphtheria.—*British Medical Journal*, May 14, 1892.

TREATMENT OF GOITRE BY INTERSTITIAL INJECTIONS OF IODINE.—Duguet (*Journal de Médecine et de Chirurgie*, tome lxiv., 4 cahier), who has since 1874 successfully treated many goitres by interstitial injections of iodine, believes that in solid recent goitres, such as are encountered in young subjects, their disappearance is most readily and rapidly effected under this treatment. Recent cystic goitres are cured even more readily than the solid tumours. Goitres which have undergone in places calcareous degeneration or present aneurismal conditions of the vessels give least satisfactory results, though even these undergo decided improvement under injection treatment. The result of this treatment is not the total destruction of the gland, but its progressive atrophy, until it no longer occasions inconvenience by its bulk. Since the gland is not entirely destroyed, the patient cannot be considered beyond the danger of recurrence, and, indeed, in some few cases this has been noted. The fear of myxœdema, however, need not be entertained. The injection material employed is the officinal tincture of iodine. This is introduced into the tumour by means of an ordinary hypodermic syringe. The needles should be kept sharp and well polished. To avoid the corroding effect of the iodine, they are washed in a weak ammoniacal solution and stored in ten per cent. carbolized oil. Before each injection the goitre is carefully measured. The needle, disconnected from the syringe, is thrust into the body of the goitre, an effort being made to avoid bloodvessels. After its introduction the needle is watched for a few seconds to see if any blood flows out. If blood escapes it is a certain sign that a bloodvessel has been punctured, and the needle should be at once withdrawn and introduced at another point, since very serious symptoms may arise from throwing the iodine directly into the circulation. If the needle enters a cyst and blood-stained serum exudes, its evacuation may be hastened by means of an aspirating syringe. When the surgeon has assured himself that the point of the needle is safely placed in the substance of the tumour, the iodine is slowly injected, from 8 to 16 drops being employed at one time. No dressing is required after these hypodermic punctures. Immediately following the treatment, pains in the ears, torticollis, lassitude, and fever may be noted. These symptoms do not last longer than a day. According to the reaction excited, the treatment is repeated every one or two weeks. Before patients are subjected to the iodine injections the urine is examined. If it is found to contain albumen, this method of treatment is not advised.—*Therapeutic Gazette*, April 1892.

CHLORIDE OF ETHYL.—Delmis (*Gaz. d. Hôp.*, March 31st, 1892) calls attention to the advantages of chloride of ethyl as a local anæsthetic for minor surgical operations not lasting longer than one or two minutes. The best method of applying the anæsthetic is by using the glass tubes introduced by Monnet of Lyons. These tubes are filled with the liquid, and have a capillary opening hermetically sealed. All that is necessary is to break off the point of the tube, and direct it on the part to be made insensitive; the heat of the hand holding the tube is sufficient to vaporise the liquid.—*British Medical Journal*, May 14, 1892.

## PERISCOPE OF OBSTETRICS AND GYNÆCOLOGY.

By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Midwifery and Gynæcology, and on Diseases of Infancy and Childhood, School of Medicine, Edinburgh.

Asafœtida for Habitual Abortion.—Dr Turazza gives the notes of four cases of habitual abortion treated by means of asafœtida in the form of pills. Normal labour followed in each, although on previous occasions abortion had occurred. The medicine is not recommended in cases in which a definite cause of abortion (such as syphilis, disease of the uterus or annexa, and tuberculosis) exists. The author gives the results of this treatment obtained by Laferta, Giordano, and Cazzani,—thirty-seven cases in all, with satisfactory results in thirty-three.—*Centralblatt für Gynäkologie*, No. 9, 1892.

Myomotomy in Pregnancy—Birth of a Living Child at the Full Term of Pregnancy.—Dr Nicolaus Flaischen records a case in which a woman, 32 years of age, and a primipara, was operated upon by abdominal section at the third month of her pregnancy. An ovarian tumour was diagnosed; but on opening the abdomen it was found that there were two fibroid growths, one with a narrow pedicle lying behind the uterus, the other with a broad base of attachment to the front wall on the left side. Labour occurred at the full time, and a living child was born without artificial aid. A severe attack of peritonitis took place in the puerperium, but the woman recovered completely.—*Centralblatt für Gynäkologie*, No. 10, 1892.

Two Successful Cæsarean Sections.—Dr Guéniot showed at a recent meeting of the Paris Obstetrical and Gynecological Society, two patients upon whom he had performed the Cæsarean section with good results, both as regarded the mothers and the infants. The first patient was affected with far-advanced osteomalacia, which the writer says has been cured by the operation although the ovaries were not removed. In the case of the second woman the abdomen was opened on account of cancer of cervix.—*Bulletins et Mémoires de la Société obstétricale et gynécologique de Paris*, p. 65, February 1892.

ON MULTIPLE ABORTION AND ESPECIALLY TWIN ABORTION.—Maygrier and Démelin contribute a clinical research upon this subject. They narrate the history of fifteen such cases, in two of which the mother died from septicæmia. Six of the abortions occurred between the third and fourth months, and nine between the fifth and sixth. One interesting clinical feature was the frequent occurrence in such cases of hydramnios, and it was noted that the amniotic fluid increased suddenly and rapidly in all these instances—acute hydramnios. The explanation of this association of twin-pregnancy and excess of liquor amnii is unknown. In eleven of the cases the twins were either alive at birth or only recently dead, in two cases one twin was born alive and the other macerated, and in two other instances both twins were dead and macerated. In one of these last cases one fœtus was papyraceous. In each of the six cases in which abortion took place at the third or fourth month there was retention of the placenta, and in two of these the mother died from septicæmia. In the nine cases at the fifth and sixth months retention of the placenta only occurred once. Amongst their hints as to treatment, the authors recommend the attempt to conserve the pregnancy of one twin, even although the other have been expelled. Antisepsis is very important in cases of placental retention.—*Archives de Tocologie et de Gynécologie*, p. 81, February 1892.

INCLINED DECUBITUS—AN IMPORTANT AID IN THE TREATMENT OF THE DISEASES OF WOMEN.—Dr Emmet writes to support the inclined decubitus as a useful means of treatment in cases of prolapsed and enlarged ovaries, of old-standing pelvic peritonitis, of tubal disease, and of fibroid tumours. The foot of the bed is elevated by means of a wooden support in the form of a four-sided pyramid placed under each leg. Dr Emmet does not look on this postural method of treatment as a "cure all," but simply as a valuable adjunct to be combined with other therapeutic measures.—*New York Journal of Gynæcology and Obstetrics*, p. 114, February 1892.

TWO SUCCESSFUL CASES OF THE CONSERVATIVE CÆSAREAN SECTION.—Dr Jewett records two cases of conservative Cæsarean section, in the first of which the operation was performed instead of craniotomy, because the patient was a Roman Catholic. She had a lumbo-sacral cyphosis, with a true conjugate diameter of 3¾ inch. Both mother and child did well. In the second case the woman was 4 ft. 6½ in. in height, and had a true conjugate of 2½ inches; labour began at the end of the sixth month, and section was performed chiefly in behalf of the mother. The child was extracted living, but was not viable; the mother recovered.—*Ibid.*, p. 177, March 1892.

PREGNANCY WITH OVARIAN TUMOUR.—Dr William Gardner narrates four cases of pregnancy complicated by the presence of an ovarian tumour. In three of these ovariotomy was performed during gestation. In the first case there was a single cyst of the right ovary, which was removed at the third month of pregnancy; in the second there was a small dermoid cyst with twisted pedicle, and although it was not then known that the patient was pregnant, she was confined eight months later of a full-time child; and in the third instance ovariotomy was performed about the fifth month for a large multilocular cyst of the left ovary. Recovery was perfect in each case, and labour occurred naturally. The author emphasizes the importance of ovariotomy in such cases, pointing out the dangers which result if labour be allowed to supervene with the cyst *in situ*, and showing that small tumours are no less dangerous than large ones, on account of the possibility of twisting of the pedicle.—*Montreal Medical Journal*, February 1892.

THE GENESIS OF MALIGNANT DISEASE OF THE CERVIX UTERI.—Dr Walter B. Chase read a paper under the above-named title before the Brooklyn Gynæcological Society, in which he strongly supported the theory of the traumatic origin of cancer of the cervix uteri. He said, " the frequency of its manifestation, as related to the frequency of parturition and its rarity in the virgin, leaves but one logical deduction, viz., that while it does not eliminate the doctrine of heredity, the conclusion is rational, that traumatism and its results, as seen in laceration, are the prime factors in the genesis of cancer of cervix." Dr Chase, therefore, concluded that it was the duty of the obstetrician to place around the parturient woman all known safeguards against this accident, and in the event of the occurrence of laceration to repair it as soon as practicable.—*Brooklyn Medical Journal*, p. 160, March 1892.

THE RELIEF OF SALPINGITIS BY DILATATION AND DRAINAGE OF THE UTERUS.—Dr Strong reports four cases of salpingitis in which he treated the condition by means of dilatation of the cervical canal, scraping away the mucous membrane of the uterus, and packing the uterine cavity with iodoform gauze. The gauze was removed every three days for ten days, and the patient kept in bed for a week. In one case he considers that the treatment resulted in cure, in two it gave complete relief, and in one it was a failure. All cases of salpingitis are not suitable for this operation; mobility of the tubes and patency of the uterine end of the canal are essential qualifications for successful interference of this kind. The time of election for the operation is one week after the menstrual flow.—*Boston Medical and Surgical Journal*, March 17, 1892.

## SURGICAL PERISCOPE.

By KENNETH M. DOUGLAS, M.D., F.R.C.S. Edin.

INTUBATION AND TRACHEOTOMY.—Dr Prescott and Dr Goldthwait (Boston) report 392 cases of intubation and 139 of tracheotomy done at the Boston City Hospital. Of the intubation cases

80 recovered (20·41 per cent.); of 82 primary tracheotomies 11 recovered; of 36 done secondarily to intubation 3 recovered; and of 21 after attempted intubation 2 recovered. In intubation the age of the child has important influence. Thus of those children who were under 3 years, 14·63 per cent. recovered; of children from 3 to 5, 23 per cent., from 6 to 10, 30·90 per cent. recovered. In successful cases the tube was worn for five days and eighteen hours on an average, the longest time it was worn being twenty-three days. "The younger the child the longer must the tube be worn." Thirty-seven of the 80 successful cases were seen at least a year and a half after the operation, and showed no indication of anything due to ulcerative processes from the pressure of the tube.—*Boston Medical and Surgical Journal*, Dec. 31, 1891.

PENETRATING PISTOL-SHOT WOUNDS OF THE SKULL.—Dr Bradford and Dr Smith (Boston) analyzed 91 collected cases of this injury. They show that when the ball enters the skull at some point anterior to the plane passing through the external auditory meati, 25 have recovered and 34 died out of 59 cases, a percentage of 42·3. In 32 cases where the bullet entered in this vertical plane, or posterior to it, 15 recovered and 17 died, the percentage then being 40·6. If we except the five cases in which the ball entered directly into the auditory meatus, of which all died, the recoveries are 53·5 per cent. of the whole number. "It is to be noted that next to the auditory meatus the most dangerous point of entry was the temple, where, out of 25 cases, 16, or 64 per cent., were fatal." "It would seem that operative interference, whether resulting in successful extraction of the missile or not, is not in itself so serious as some writers have supposed. Five out of six cases where the bullet was removed by the trephine recovered. Out of 15 cases where the bullet was removed by various operations 10, or 66 per cent., recovered. In 37 instances of operative interference 20, or 54 per cent., recovered. Of 25 cases where the expectant plan was followed, except that the probe was passed, only 12, or 48 per cent., recovered, while in the remaining 29 cases, in which no record is made on the point under discussion, only eight, or 27·5 per cent., got well. To be classed among the latter cases, however, were those who were moribund when first seen, and where no treatment would have availed." The writers point out further that the permanent lodgment of the bullet within the cranium gave rise, in all the cases they could trace, to more or less intense cerebral symptoms. In conclusion, they express the view that the treatment of pistol-shot wounds of the skull should be conducted on the same principles as the treatment of perforating fractures of the skull by a sharp instrument. That is, the wound should be thoroughly explored and thoroughly cleaned; all loose fragments should be removed, including the bullet, if readily accessible. Drainage and strict asepsis are essential.—*Ibid.*, Oct. 15, 1891.

FRACTURE OF THE FEMUR BELOW THE TROCHANTERS.—Dr Allis

(Philadelphia) expresses himself in the following terms with regard to this injury:—That after fracture the fragments are bound together by a hinge (the tendon of the gluteus maximus); that traction, whether in the horizontal or the oblique direction, on the lower fragment, is "incapable of restoring the long axis of the broken bone," and "cannot efface the anterior angular tendency;" that "no surface treatment can *insure* a useful limb," and "the conversion of a sealed (simple) fracture into an exposed (compound) one offers the only possible means for accurate diagnosis, and the only possible method of rational treatment."—*Medical News*, Nov. 21, 1891.

SUBCLAVICULAR DISLOCATION OF THE HUMERUS — OPEN ARTHROTOMY.—Dr Parmenter records this unusual case, in which, on account of failure of bloodless methods of reduction, the loss of the patient's strength, the diseased state of his vessels, and the great fixity of the displaced head of the humerus, operative treatment was adopted a week after the injury. Incision was made through the deltoid anteriorly, and on opening the joint the head was found grasped by the tense capsule, the muscles to the tuberosities being also tightly stretched, and the biceps tendons lying tense across the surface of the tuberosity. Not till the tense supra- and infraspinatus muscles and subscapulars had been divided at their insertions could reduction be effected. After three weeks passive movement was begun, and six months after operation the arm was freely movable, and the joint appeared normal. From a study of the general question, Dr Parmenter believes this mode of treatment advisable in recent cases only, resection being preferable in old-standing cases.—*Buffalo Medical and Surgical Journal*, July 1891.

## PERISCOPE OF SYPHILOLOGY AND GENITO-URINARY DISEASES.

By FRANCIS CADELL, F.R.C.S. Ed.

SOME DANGERS OF INFECTION INCIDENTAL TO PROFESSIONAL LIFE.—In a paper on this subject by Dr J. C. White, in the *Boston Medical and Surgical Journal*, Feb. 4, 1892, a part of it is devoted to syphilitic infection. He had notes of fifteen cases of syphilis in physicians, who were inoculated upon the hand during the discharge of their professional duties. They were mostly severe cases. Three of these unfortunates, possibly more, died of the disease. All of them suffered greatly in mind, and were more or less physically disabled or disfigured for a time. Some of them might readily have communicated the disease to their own households or to patients, before the nature of the digital affection was recognised. He once treated a midwife with an open primary lesion upon her finger. She had delivered thirty-two women whilst the sore was in this condition. Two practical lessons enforced themselves upon him:—First, always to wash one's hands immediately after an interview with a patient who has, or is suspected to have syphilis, without regard to the conditions of the parts handled, or even if not touched at all. This should be made an invariable custom. Second, that the physician should regard every persistent sore upon himself, of whatever seat and however innocent apparently, as a possible lesion of tuberculosis or syphilis, and seek competent advice without delay. Such advice is never found at home.

THE SPREAD OF SYPHILIS BY CIGARS.—In a letter to the editor of the *New York Medical Journal,* March 19, 1892, Dr Gottheil describes two cases of syphilis in cigar-finishers. They were girls, who had both chancres of the lower lip, and who had continued their trade during the existence of the primary sore and the resulting eruptions of the skin and mucous membranes. They had invariably finished off the ends of the cigars with saliva, and said the practice was universal, as it would take too long to use knife and paste. Dr Gottheil had not heard of any epidemics of syphilis distinctly traced to the use of cigars; and thought it possible that the tobacco juice in the mouth might render the contagious element innocuous. Moreover, the practice of using the teeth and saliva in the manufacture of cigars was not without serious objections, entirely apart from considerations of disease. He thought employers should put a stop to such an unclean and dangerous method of cigar manufacture, and suggested to smokers the use of cigar-holders in the interests of cleanliness if of nothing else.

GOUT OF THE PENIS.—Sir Dyce Duckworth described a case of this rare affection in a man æt. 42, a glasscutter, admitted into St Bartholomew's Hospital with gouty arthritis. Five days before admission he was awakened by sudden pain in the right wrist and the right great toe-joint. The following day he awoke with pain in, and firm erection of the penis. From time to time various joints were affected, with slight rises of temperature. Priapism persisted for twenty-one days without intermission, and gradually subsided, with general amendment of all the symptoms. Micturition was painful, and a soft catheter had to be passed. The pathology was believed to be thrombosis of veins in the corpora cavernosa, with some inflammatory condition of the trabecular structure. —*British Medical Journal,* January 16, 1892.

GRATTAGE IN CHANCROIDS.—Shasmintzew recommends scraping the ulcer, and the subsequent application of a powder containing tannic and boric acids, or of a 2 per cent. solution of nitrate of silver. When this is done early enough, under local anæsthesia, it is almost certain, he holds, to prevent the formation of a bubo (*Russkaia meditzina,* March 24, 1891).—*The Satellite,* April 1892.

MERCURIALISM AND NEPHRITIS IN SYPHILIS.—Lang (*Centralbl. f. d. ges. Therap.,* January 1892) states that not only affections of the mouth, but colitis and nephritis, may be among the early signs of acute mercurialism. Examination of the urine should be made from time to time. Nephritis may occur in the earliest period of syphilis, either as a direct action of the syphilitic contagion itself or of its products—namely, an infective or a toxic nephritis. It may be difficult to know whether a renal affection be syphilitic or not. If an individual previously presenting no evidence of renal disease contract syphilis, and with the development of the constitutional ailment show signs of nephritis, this may rightly be taken, in the absence of other sufficient cause, as part of the general disease. Albuminuria, with dirty-looking bloody urine, blood casts, and cell-detritus, suddenly coming and quickly going, may point to a breaking-down gumma. If albumen and casts appear in the urine during or shortly after a course of mercury, the idea of a mercurial toxic nephritis suggests itself. The probability is greater if the symptoms first appear during the treatment. Mercury may be found in the urine. If the treatment be stopped the symptoms disappear. The author then advocates the employment of oleum cinereum by injection in the treatment of syphilis, and shows there is no danger in its rational use.—*British Medical Journal,* January 30, 1892.

IMMUNITY OF THE MOTHER IN PATERNAL HEREDITARY SYPHILIS.—Diday (*Archives de Tocol. et de Gynéc.,* November 1891) analyzes Colles' law. He notes how in a certain number of cases the mother who bears a child begotten by a syphilitic father contracts during the second or third month of pregnancy a disease which is syphilis without the primary symptoms. As a rule it is fortunately otherwise, and the mother may bear the child to term, and may suckle it and fondle it without contracting the disease, though it may be suffering from acute symptoms, including ulceration of the mouth. Diday explains this well-known phenomenon by Pasteur's discovery that methodical repetition of inoculation attenuates and ultimately neutralises the virus. This is shown when animals are repeatedly inoculated with the virus of hydrophobia. When a woman bears a syphilitic child, the blood, freely circulating between mother and fœtus, becomes a perfect vehicle for repeated inoculation—an "attenuating fluid," or *porte atténuateur.* Indeed, the inoculation is constant. In fact, as Diday expresses it, the mother is rendered proof against syphilis by seven or eight months of perfectioned Pasteurisation.—*British Medical Journal,* January 9, 1892.

# Part Fifth.

## MEDICAL NEWS.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, EDINBURGH, AND FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—The Quarterly Examination for the Triple Qualification in Edinburgh took place in April, with the following results:—Of 101 candidates who entered for the complete final examination, the following 48 passed, and were admitted L.R.C.P. & S.E., and L.F.P. & S.G. :—George Hepworth, Leeds ; Henry Richard Preece, Cheltenham ; Charles Frederick Gilborne Sixsmith, Cavan; Alexander Gibson Clark, Forfarshire; William Herbert Knight, Lincolnshire ; Charles Percival Felvus, Yorkshire ; William George M'Dowell, Liverpool ; James M'Kee, Greenock ; Robert Owen, Carnarvonshire ; Francis William Mason, Leicester ; Richard Robert Rowland Morrison, County Cork ; Harold Ashton, Oldham ; David Illtyd Jones, Carmarthenshire ; Wilfred Jameson, Carlow ; John Finlay Mitchell, Newtownards; Ralph Harry Frank Bostock, Leicester; Ernest William Frampton Kirkman, Dublin ; William Henry Walker, Ripon ; Frank Augustus Godfrey, Gibraltar ; William Arthur Collier, Dunkineely ; Samuel Haldane Heald, Wakefield ; Daniel Mackenzie Steedman, Cape Town ; Sidley Jevers Lightfoot, Limerick ; Charles Allan Brough, London ; Isaac Wellwood Johnson, Nova Scotia ; John Carson Loughridge, County Antrim ; Thomas Keays, County Limerick ; Robert James Blackham, Belfast ; Elizabeth Adelaide Baker, South Africa; James Kitchin, Elgin ; Henry George Palmer, Portsmouth ; David Cameron Carnduff, Berhampore ; Robert Edward Adamson, Cirencester ; John Topham Spink, Leeds ; Ernest Switzer Forde, Cork ; Michael Cahill, Cork ; Thomas John Lonergan, Melbourne ; Alfred Ernest Hodges, County Cork ; John Robert Musgrave Rae, Northumberland ; Francis Thomas Troughton, Kent ; Thomas William Norton, Brookhouse; Evan Davies, Cardiganshire; Charles Richard Webster, York ; James Ross Thomson, County Antrim ; Benjamin Stuart Lockwood, Huddersfield ; Susan Grace Dougall, Montreal ; Charles Middleton Coates, Bath ; and Alfred James Anderson Peters, Arbroath.

THE LIQUOR CARNIS CO., 50 Holborn Viaduct, London, E.C., express their willingness to supply any medical practitioner who chooses to ask for it with a neat little bone paper-knife as an advertisement. No one in these days need cut his new books with his finger unless he prefers to do so.

## OBITUARY.

### WILLIAM JAMES M'KENDRICK, B.Sc., M.B., C.M., GLASGOW.

ALL those who know and love Professor M'Kendrick will hear, with extreme regret, that his eldest son, Mr William James M'Kendrick, died at Prince Albert, South Africa, on Saturday the 23rd of April. Before his father left Edinburgh for Glasgow many of us knew him as an exceptionally bright, handsome, and intelligent schoolboy. The promise of his childhood was verified by a university course of great extent and thoroughness, and when he graduated B.Sc., and afterwards as M.B. and C.M., in 1891, with distinction, all who knew him felt that his career included great possibilities of usefulness and success. At the beginning of last winter he got the coveted post of Resident Surgeon in Professor George Buchanan's Wards in the Western Infirmary, and had proved both his zeal and success in surgical work when his health gave way, and in January he left with his mother for a warmer climate in search of recovery. Alas! this was not to be, and at the age of twenty-four all the bright hopes of parents and friends were buried in a premature grave. Few men were more generally and deservedly liked and esteemed than Willie M'Kendrick, and his sorrowing parents must feel a sympathy which is universal.

## MR JAMES M'GLADE, L.R.C.P. & S., GLASGOW.

EDINBURGH students between 1872 and 1876 will remember a very quiet, shy man, who was signally diligent and attentive in his ward work, but from his modesty kept in the background at examination. After taking the double qualification in 1876, he soon went to the Leadhills, in which wild and difficult district he practised with much acceptance while his health permitted. When he could no longer stand the work and exposure he went to a poor district in Glasgow, in which he was trying to work up a practice when, in March of this year, he was attacked by pneumonia, which proved so severe and rapid as to cause his death in four days. He leaves a widow and two children to mourn his sudden and premature death.

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## DEATH OF DR JANET HUNTER, L.R.C.P. & S. ED.

OF those highly-educated, gifted, and zealous medical women who have gone out to labour in India, Dr Janet Hunter was one of the foremost both in gifts and energy.

She was born in Ayrshire about thirty-one years ago. Her father, who was a farmer, is now dead, but her mother, brother, and sisters survive to mourn her loss. Determined to become a doctor, Miss Hunter entered the London School of Medicine for Women, and during her whole curriculum proved herself the most distinguished student of her year. She was very zealous and proficient in practical hospital work, in which as Clinical Clerk, both in the Royal Free Hospital and in the Hospital for Sick Children at Great Ormond Street, she had excellent opportunities of study. In both these positions she won golden opinions from the staff on account of the thoroughness and accuracy of her work.

She took the L.R.C.P. & S. Edin. in 1888 with ease and distinction, and in 1889 graduated M.D. Bruxelles. After graduating she spent six months in London in obstetric work, and four months more in Vienna and Prague on special subjects. In the end of 1889 she joined Miss M'Phail, who also is a distinguished Edinburgh licentiate and practitioner, in taking charge of the Hospital and Dispensaries of the Zenana Mission of the Free Church of Scotland, and by the high standard of her aim and attainment has done most valuable work, both medical and missionary. She felt that the medical missionary must be a medical man or woman of the highest efficiency and industry. In this important post she rapidly won the affection and respect of all with whom she came in contact—workers and patients, natives and Europeans.

Her useful life of such high promise was cut short by an attack of cholera on May 1st, 1892. It was short and sharp, lasting less than twenty-four hours. She died at the Mission House, Royapuram, Madras.

## THE LATE DR D. HAYES AGNEW.

MINUTE on the death of Dr D. Hayes Agnew, adopted by the College of Physicians of Philadelphia, March 24, 1892:—

"The death of Dr D. Hayes Agnew, recently President of the College, in the seventy-fourth year of his age, and after a life crowned with honour and usefulness, calls for an expression of the sense entertained by the College of the gravity of the loss which it suffers, in common with the profession he adorned, the charitable institutions he served, and the community in which his skill did so much to lessen suffering and death.

"He began his professional life with no adventitious aids; yet by incessant industry, indomitable perseverance, and singleness of purpose, he attained to its highest rank. No temptation distracted his attention from the goal of his life: neither extraneous science, nor general literature, nor the allurements of art, nor the pleasures of society.

"The undivided strength of his mind and his affections were devoted to enlarging the domain of surgery, not only in its operative methods, which he always subordinated to the welfare of his patients, but also in preparing for his profession a literary monument that might speak for him when his voice should be no longer heard. His minute acquaintance with anatomy and his ambidextrous skill enabled him to perform, with ease to himself and safety to his patients, operations which less accomplished surgeons hesitated to undertake.

"He possessed a certain magnetism of manner, quite independent of formality, that evidently proceeded from the heart and drew all hearts to himself. Never frivolous, but always cheerful, he was dignified, grave, and earnest, making all who heard him as a teacher and speaker, or in familiar intercourse, recognise in him, above all other things, the upright man. For he possessed eloquence of conviction and the force of absolute honesty in all his statements, and thereby drew to himself, as enthusiastic admirers and disciples, the successive classes of students whom he taught.

"The College, desiring to show respect for the purity, uprightness, unselfishness, and modesty of Dr Agnew's character; its admiration for the noble example of his life; and its sense of the value of his contributions to the science and art of surgery, directs that this minute shall be duly recorded, and a copy of it, signed by the President and Secretary, be conveyed to Dr Agnew's family. Also, that the College will attend the funeral in a body, and that the President be requested to appoint a Fellow to prepare a memoir of our late colleague."—CHARLES W. DULLES, M.D., *Secretary.*

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